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June 29, 1907.]

THE
GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

(ESTABLISHED IN 1841.)

VOL. XLI.—THIRD SERIES:

JANUARY TO JUNE, 1907.

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LONDON:
41, WELLINGTON STREET, COVENT GARDEN, W.C.
1907.

INDEX OF CONTENTS.

425110 JANUARY TO JUNE, 1907.

(FOR SPECIAL HEADINGS SEE UNDER BOOKS; CERTIFICATES; LAW NOTES; NURSERY NOTES; OBITUARY; PLANT PORTRAITS; PLANTS, NEW; SCIENTIFIC COMMITTEE; SOCIETIES; AND ILLUSTRATIONS.)

A

ARBOTSURRY, Dorsetshire, damage by frost at, 174
 Abercainey, trees and shrubs at, 168
 Abies Douglasii as a forest tree, 74; *A. magnifica* var. *xanthocarpa*, 114, 159; *A. nobilis* and its allies, 144; *A. religiosa* at Trevince, 46
 Acacia Decaisniana, 160; *A. caffra* flowering near Pretoria, 20
 Acacia flowers for the English market, 74, 145
 Academy, pictures at the Royal, 312
 Acantholimon echinus, a cushion plant, 311
 Adaptation of plants to their environment, 352, 372
 Adiantum Ferns in Covent Garden Market, 150
 Afforestation of waste lands, 409
 Afghanistan, gardening in, 73
 Africa, British Central, summer in, 229, 262
 Agapanthus as a hardy plant, 256
 Agaves, a disease of, 389
 Agricultural College, South-Eastern, 139, 253, 333
 Agricultural Education Committee, 205, 302, 317, 371, 388, 408
 Agricultural Exhibition at Nice, 42
 Agricultural research, donations to, 63, 190
 Agriculture at Cambridge, 40; in 1906, 26
 Alexandria, horticulture at, 286
 Algæ, collection of, presented to Birmingham University, 73
 Almond, early flowering of the, 191
 Alnus incana aurea, 105
 Aloe pallida, 156
 Aloes in flower at Kew, 26
 Alpine garden at Kew, 185, 365
 Alpine garden, the, 21, 100, 198, 249, 264, 297, 379, 404, 418
 Allwood, Montagu C. (*The Perpetual-Flowering Carnation*), 370
 Alyssum Moellendorffianum, 418
 Amateur gardeners and horticultural law, lecture on, 290
 America, Arbor Day celebrations in, 121; British gardeners in, 73, 80, 205
 American Gooseberry mildew, the, 8, 24, 29, 43, 60, 139, 238, 269
 American Irises, 418
 America, opportunities for gardeners in, 80, 191
 Anchusa italica "Opal," 387
 Andrena fulva, a burrowing bee, 320
 Anemone blanda var. *scythnica*, 297
 Ansellia gigantea, 362
 Apiary, the management of the, 87, 119, 155, 219, 251, 283, 298, 331
 Apple and Pear culture in Co. Cork, 19
 Apples: Ard Cairn Russet, 174; Aus Lunow, 384; Cox's Orange Pippin, 408; Encore, 3; High Canons, 133; Lord Grosvenor and Manx Codlin, 206; Minchull Crab, 94, 107; Ontario, 247; Ross Nonpareil, 182; the seedless, 59, 105; seedless, in America, 285
 Apples, some late-keeping, 223, 247
 Apple sucker, the (*Psylla Mali*), 338
 Apricot trees, caterpillars on, 60
 Aquatic weeds, to destroy, 140
 Araucaria imbricata, the fertilisation of, 209; with upright basal growths, 100, 126, 160

Arbor Day at Nebraska, U.S.A., 121
 Arboretum at Tervueren, 122
 Arboriculture in Germany, 135
 Ard Cairn, Cork, flowers at, 203
 Arpophyllum giganteum, 378
 Arundo Donax and its forms, 364
 Asparagus beds, the making of, 192
 Asparagus falcatus, 82
 Asparagus, phosphatic manures for, 41; care needed in cutting, 374; culture in the Evesham district, 329; exhibition at Evesham, 370
 Aspidistra punctata, 107
 Auricula Miss Berkeley, 286
 Australasia, emigration to, 3
 Azara microphylla, 297

B

BACTERIA in soil, 386
 Baker, J. G., awarded the Veitchian medal, 104, 188
 Bamboo, a hardy, 145
 Banana, a hardy, 101
 Bank, a dry, plants suitable for, 271
 Bank Holidays and flower show arrangements, 223
 Bassia latifolia, the Mohwa tree, 207, 223
 Bayford, C. A., presentation to, 89
 Beans, butter or wax-podded, 288; stringless and haricot, 201
 Bedding plants, the effective arrangement of, 261, 279
 Bedding, sub-tropical, 337; summer, in public parks, 337
 Beech, purple, the hardness of, 373
 Beeches, South American species of, 42
 Bees, the management of, 87, 119, 155, 219, 251, 283, 298, 331
 Begonia Gloire de Lorraine raised from seed, 29, 45, 61, 94, 141, 145, 176
 Begonia Limminghei, 247
 Belgian horticulturists, 121
 Benevolent Institution, Gardeners' Royal, 40, 72, 221, 422; annual meeting, 78
 Berberis buxifolia, 412; the garden species and varieties of, 374, 412
 Berger, Alwin (*Succulente Euphorbien*), 13
 Berlin, international horticultural exhibition at, 284; old Botanical Garden sold, 317
 Bill, Destructive Insects and Pests, 317
 Biology, economic, 11
 Bird life in London, 146
 Bird-lime, to make, 148
 Birds and buds, 288
 Birmingham, flower shows at, 284, 351; public parks, 302; University presented with a collection of Algæ, 73
 Blackberries and Raspberries, 33, 60, 77
 Black Currant-bud mite, the, 221; a remedy for, 56, 145, 193
 Black-rot of Cabbages, 371
 Blair Castle, trees and shrubs at, 153
 Blancard Fund, the, 11, 25
 Blepharocalyx spiræoides, 156
 Boiler, the Cornish Trentham, 180; the Deflecta, 107; incrusts, 16

BOOKS, NOTICES OF:—A Concise Handbook of Garden Annual and Biennial Plants (*C. M. A. Peake*), 301; Alphabet of Gardening (*T. W. Sanders*), 410; Alpine Plants (*W. A. Clark*), 90; Beautiful Gardens (*Walter P. Wright*), 239, 269; Book of the Open Air (*Edward Thomas*), 222; Botanical Magazine, 25, 89, 156, 238, 370; British Plants (*Dr. Rendle and J. Britten*), 285; Chrysanthemums, and How to Grow Them for Exhibition (*J. B. Wroe*), 73; Coconut Planters' Manual (*John Ferguson*), 317; Critical Review of the Genus Eucalyptus (*J. H. Maiden*), 302; Dictionnaire Iconographique des Orchidees, 82; Die Parthenocarpie oder Jungferfruchtigkeit der Obstbäume, (*Dr. Richard Ewert*), 316 Dillenian Herbaria (*G. Claridge Druce*), 191, 284; Essai sur la Flore de la Guinée Française (*M. Pöbguin*), 86; Etudes sur la Flore du Baset du Moyen-Congo (*E. de Wildeman*), 298; Farming for Ladies (*Edith Park*), 222; Fern Dimorphism (*Dr. Christ*), 310; Floral Designs (*W. D. Willshire*), 301; Flore de France (*Abbé Coste*), 69; Forest Flora of New South Wales (*J. H. Maiden*), 301; Fruit-Farming for Profit (*Geo. Bunyard*), 90; Gardening Year-Book (*Geo. Gordon*), 90; Greenhouse and Conservatory Construction and Heating (*Paul N. Hasluck*), 247; Game and Game Coverts (*John Simpson*), 418; Haandbogi Norges Flora (*Axel Blytt*), 42; Handbuch der Pflanzenkrankheiten (*Dr. Sorauner*), 209; How I Work My Small Garden (*F. E. Green*), 206; How to Study Wild Flowers (*Rev. George Henslow*), 285; Icones Plantarum, 58; Indian Trees (*Sir Dietrich Brandis*), 231; Journal of Agricultural Science, 56; Icones Selectae Horti Thenensis (*M. de Wildeman*), 231; Journal of Forestry, 57, 301; Journal of the Kew Guild, 56; Journal of the Royal Horticultural Society, 42; Kew Bulletin, 25, 89, 221, 378; Lady Dorothy Neville's Reminiscences (*Lady Dorothy Neville*), 89; Landschaftliche Gartengestaltung (*Camillo Karl Schneider*), 21; Le Bambou, 11; Les Cattleya Traite de Culture Pratique (*Leon Duval*), 36; Life and Flowers (*Maurice Maeterlinck*), 301; Lindenia, 12; Manual of Forestry (*Dr. Schlich*), 191; Mendelism (*R. C. Punnett*), 158; Mission Emile Laurent (*E. de Wildeman*), 298; Missouri Botanical Garden Report, 42; Mitteilungen der Dendrologischen Gesellschaft, 1906 (*Graf v. Schapelin*), 185; My Garden Diary (*Sutton & Sons*), 56; National Chrysanthemum Society's Year-Book (*C. H. Curtis and C. H. Payne*), 239; National Rose Society's Annual, 115; Nature's Own Gardens (*Maud U. Clarke*), 285; New Garden Plants of the Year 1906 (*Kew List*), 140; One and All Gardening (*E. O. Greening*), 56; Ootheca Wolleyana (*Prof. Alfred Newton*), 205; Our

Kitchen Garden (*Tom Jerrold*), 121; Plant Ecology (*Rev. Prof. George Henslow*), 220; Potato Year-Book (*H. Wright and W. H. Adsett*), 25, 48; Potatoes (*Hon. H. A. Stanhope*), 205; Progressus Rei Botanicae (*Dr. Lotsy*), 57; Publications Received, 11, 58, 74, 105, 122, 141, 191, 239, 303, 318, 388, 423; Quarterly Journal of Forestry (*Prof. Fisher*), 57, 301; Rambles on the Riviera (*Dr. Strasburger*), 69; Recent Progress in the Study of Variation, Heredity, and Evolution (*R. H. Lock*), 53; Revue Horticole, 25; Royal Horticultural Society's Report on the Conference on Genetics (*Rev. W. Wilks, M.A.*), 252; Seaside Planting of Trees and Shrubs (*A. Gault*), 328; Seasonal Botany (*Mrs. M. O'Brien Harris*), 58; Studio Year-Book of Decorative Art, 253; Succulente Euphorbien (*Alwin Berger*), 13; Sweet Pea Annual, 42; Text Book of Plant Diseases (*George Masser*), 222; The Book of the Open Air, 285; The Book of Vegetables (*Allan French*), 342; The Dillenian Herbaria (*Claridge Druce*), 284; The Flowers and Trees of Palestine (*Augusta A. Temple*), 285; The Modern Carnation (*Hayward Mathias and P. Smith*), 136; The Perpetual Flowering Carnation (*Montagu C. Allwood*), 370; The Principles of Horticulture (*Wilfred Mark Webb*), 247; The Unheated Greenhouse (*Mrs. K. L. Davidson*), 366; Trading Made Easy (*Charles A. Houffe*), 140; Transactions of the Royal Scottish Arboricultural Society, 26
 Boring pests of fruit trees, 318
 Botanical nomenclature, international rules of, 17
 Botany, economic, at Manchester, 105
 Bothy accommodation for young gardeners, 122
 Bramble hybrids, 60
 Brandis, Sir Dietrich (*Indian Trees*), 231
 Brandegee herbarium presented to California University, 10
 Brasso-Lælio-Cattleya Fowleri, 303
 Brazilian Orchids, 191
 Bribe to gardeners, offered by foreign nursery firm, 73
 British Central Africa, summer in, 229, 262
 British gardeners in the United States, 73, 80, 205
 British Guiana, exports of rice from, 410
 Britten, J., and Dr. Rendle (*British Plants*), 285
 Broccoli, spring, 241
 Brown-rot of fruit, 379
 Brussels Botanic Garden, fern-house in, 312
 Bryophyllum calycinum, 422
 Buds destroyed by birds, 288
 Bulb-mite, to destroy, 77
 Bulbs, Guernsey, 57
 Bulgaria, the vegetable products of, 388
 Bunyard, Geo. (*Fruit-Farming for Profit*), 90
 Burbank, Luther, 141
 Burdett-Coutts, the late Baroness, 173
 Burn, John, Mr., 238
 Business, how to start a nursery, 243

C

- CABBAGES and Cauliflowers, black-rot disease of, 371
 Cabbage, red, the hardness of, 373
 Cabbages, autumn and winter, 13;
 bolting and non-bolting, 327
Caipophora coronata, 156
 Calabash used for making pipes, 134
Caladiums, variegated, raising, 125
Calanthes, deciduous, the culture of, 90
Calceolarias, a monograph of the species of, 254
 Calcutta Botanic Garden, 25
 California, herbarium presented to, 10; the Onion seed crop in, 388
Callas (*Richardia africana*) planted in an open lake at Byram Park, 320
Callispyche mirabilis, 101
Caltha palustris "polypetala," 256
 Cambridge University farm, 40
Camellia, a large, in Leonardslee Gardens, 208; the hardness of the, 193, 374, 389
Camellias out-of-doors, the culture of, 297
Campanula garganica hirsuta alba, 404
 Canada, fruit prospects in, 387
 Canker, Rose, 313
 Canterbury, a pinetum at, 305
 Cape Colony, fruit culture in, 239
Carbolineum, a spray for fruit trees, 14
 Carbon supply of plants, a puzzle, 277, 304, 374
 Cardiff City gardeners, 173
 Carnation flowers, a sheath for, 73
 Carnation house, best kind of, 125
 Carnation pest (*Alternaria* sp.), 371
 Carnations, American winter-flowering, 190; at Porter's Park, 174; at Swan Lane Nurseries, 38; fraudulent sale of, 211, 241, 256; in America, 139; manure for, 396; select varieties for winter-flowering, 93; suitable structure for, 96; winter-flowering, a French note on, 301
 Carrots, winter and spring, 66
 Carson, D., presentation to, 203
Cassia auriculata, a Tea plant, 334
 Castle Kennedy, trees and shrubs at, 192
Catalpa cordifolia, 217
 Cat as a scarecrow, 160, 180, 211
 Caterpillars on Apricot trees, 60
 Cats in the garden, 160, 211
 Cattleya fly, the 94
Cattleyas, white, the breeding of, 21
 Cauliflower and Cabbage rot disease, 371
 Cauliflowers, early varieties of, 247
Ceanothus thyrsiflorus at Kew Gardens, 221
 Cedar at Childrick, 223
 Cedars at Kew, the, 25
Cedrus Deodara around London, 126
Celeriac as a winter vegetable, 37
Cereus grandiflorus, 412
Ceropegias in cultivation, species of, 20
- CERTIFICATED FRUITS AND VEGETABLES.**—Kale Chou de Russie, 195; Melon Eminence, 427; Orange Excelsior, 109; Pear Bickling, 31; Strawberry Kentish Favourite, 427
- CERTIFICATED PLANTS.**—*Acineta Humboldtii*, 290; *Actinidia chinensis*, 358; *Agapetes speciosa*, 258; *Amphicome Emodi*, 426; *Auriculas*: Brightness, 258; Miss Berkeley, 258; "Henry Marshall," 322; *Azalea* Mme. Anthony Koster, 358; *Begonias*: Lady Cromer, 358; Mrs. J. C. Gwillim, 358; Rhoda Pope, 358; Wm. Marshall, 358; *Brasso-Cattleya Digbyano-Schröderæ* "Fowler's variety," 290; B.-C. H. G. Alexander, 161; B.-C. Pluto, 31; *Brasso-Cattleya* x *Veitchii*, 259; *Brasso-Lælia* Gipsy, 290; *Brasso-Lælia-Cattleya* "Fowleri," 290; B.-L.-C. Lido, 354; *Caladium* Thomas Tomlinson, 358; *Calceolaria Veitch's Hybrid*, 426; *Carnations*: Jessica, 289; Marmion, 358; The Squire, 426; *Cattleya* Maggie Raphael alba, 31; C. Mendeli Francis Wellesley, 393; C. Mossiæ Princess of Wales, 354; C. Trianae Mooreana, 226; C. T. The Premier, 161; *Cirrhopetalum gracillimum*, 427; *Clivia miniata* var. *citrina*, 322; *Celogyne asperata*, 427; C. Colmanii x, 109; *Coleus Cordelia*, 426; *Cymbidium Colmanæ*, "Edenside variety," 195; *Cymbidium insignis*, "Glebeland's variety," 161; *Cypripedium Dickinsonianum*, 161; C. "Mrs. Francis Wellesley," 161; C. *Tautzianum nigricans*, 62; C. *tibeticum*, 353; C. *vill.-exul*, 161; *Cyrtomium falcatum* Rochfordii, 160; *Cytisus Firefly*, 358; *Davallia braziliensis*, 392; *Dendrobium chrysseum giganteum*, 290; *Dendrobium Wilsonii*, 290; *Ervum gracile*, 426; *Freesia Chapmanii*, 160; F. *Tubergenii* Amethyst, 258; *Gladiolus atro-violaceus*, 322; *Haberlea rhodopensis* var. *virginalis*, 322; *Hartwegia purpurea*, 427; *Hippeastrum* Lady Howick, 226; H. Mrs. Carl Jay, 392; H. Vulcan, 225; *Hydrangea arborescens* var. *grandiflora*, 322; *Iris*: *Aspasia*, 160; x *Caterina*, 392; King of the Whites, 426; x Luna, 322; l'Unique, 426; *Melusine*, 160; Mrs. W. T. Ware, 426; *paracina*, 392; *Kalanchoe Dyeri*, 108; *Lachenalia* May Crossbie, 160; *Lælia anceps Schröderæ* "Grace Ruby," 62; *Lælio-Cattleya* Baroness Schröder, Westonbirt variety, 226; L.-C. Frederick Boyle var. *Kerchovæ*, 290; L.-C. Ganymede, 290; L.-C. Golden Glory, 353; L.-C. Lawrie, 226; *Lissochilus giganteus*, 427; *Lonicera Maackii*, 392; *Lycaste Ballia*, South Lodge variety, 161; *Magnolia Soulangeana nigra*, 194; *Maxillaria grandiflora*, 62; *Meconopsis racemosa*, 392; *Miltonia vexillaria chelsiensis* superba, 393; M. v., Westonbirt variety, 353; *Narcissi*: Ailsa, 289; *Aphrodite*, 273; *Homespun*, 225; *Brilliance*, 273; *Corallina*, 273; *Glitter*, 273; *Kestrel*, 273; Miss Willmott, 289; *Nephrolepis exaltata* var. *Whitmanii*, 108; *Odontioda Bradshawæ*, 30; *Odontoglossum "Aliceæ"*, 31; O. *ardentissimum* "Herbert Goodson," 259; O. a. *Robsonæ*, 353; O. *caloglossum*, 62; O. *cœruleum*, 354; O. *crispum album*, "Orchid Villa" variety, 226; O. c. *Rosemary*, 195; O. c. *Lily Bourdas*, 195; O. c. *Mossiæ*, 161; O. c. *Solum*, 353; O. c. *xanthotes*, 353; O. c. x. "White Lady," 323; O. *eximium* "King of England," 353; O. *gandavense*, 353; O. Lady Howick, 195; O. *Lambeaunianum* "Ideal," 109; O. *Thompsonianum* superbum, 354; O. *mirum* "Lady Howick," 161; O. "Othello," 259; O. Prince Edward of Wales, 290; O. Roi d'Angleterre, 226; O. Ruby, 62; O. *venustum* "Apollo," 109; *Oncidium leucochilum* "Mr. F. J. Hanbury," 323; *Papaver* Princess Ena, 358; Jennie Mawson, 426; *Phaio-Calanthe Colmanii*, 31; *Plocoglottis* Lowii, 427; *Primula Cockburniana*, 258; P. *stellata* (strain), 160; P. x Unique, 358; *Pyrus* (*Cydonia*) *japonica* Simonii, 289; *Rhododendron amoenum* Hexe, 160; R. Duke of Cornwall, 194; R. *intricatum* (*nigro-punctatum*), 225; R. *Kewense* x, 194; *Roses*: Dr. William Gordon, 358; *Pharisæer*, 258; Richmond, 161; *Saxifraga aizoon rosea*, 358; S. *Burseriana* Gloria, 194; *Sophro-Lælia-Phroso* superba, 259; *Spathoglottis Colmanii aureum*, 161; Sweet Peas Carmine Paradise, 427; Evelyn Hemus, 427; *Syringa* *Josikæa eximia*, 392; *Tulips*: Gorgeous, 358; Le Grandeur, 289; *Verbena Aubletia compacta*, 358
 Ceylon Botanic Garden, 215
 Ceylon, rubber culture in, 11
Chamaerops Fortunei, 254; C. *humilis*, a European Palm, 213
Chenopodium Bonus-Henricus as a vegetable, 287
 Cherry, Early Rivers, 67
 Chicago University, gifts to, 105
 Childrick, an old Cedar at, 223
 China, a letter from, 422
Chionosilla "The Queen," 249
 Chittenden, F. J., 56, 233
 Chlorophyll, the action of, in relation to light and temperature, 254
Choisya ternata at Fir Grange Gardens, 382; flowering three times during 1906, 10, 53
 Christ, Dr. (*Fern Dimorphism*), 310
 Christmas Roses (*Helleborus*), the proper time to shift, 94
Chrysanthemum sports, peculiarities in, 37, 301
Chrysanthemums at the "market" show, 5; how to pack for transit, 5; for cut blooms, 182; for exhibition, a list of, 59; single-flowered, 8
 Churchill, G. C., the late, 25
Cinerarias with revolute florets, 222
 Clarke, Maud U. (*Nature's Own Gardens*), 285
 Clark, W. A. (*Alpine Plants*), 90
 Claydon Park, Bucks, 49
 Clayton, H. J., retirement of, 190
Clematis montana, 412
 Climate and vegetation, 42
 Climatic effect on plants in the Himalayas, 408
 Cobnuts and Filberts, culture of, 61
 Coconut planting for profit, 317
 Coconut, the seedless, 285
Colchicum autumnale, 56, 144; C. *crocifolium*, 198; *Colchicum*, species of, at Kew, 56; the planting of, 80
 Coldrenick, rare trees at, 130
 Cold storage, 28
 Colonial appointments, need for care in accepting, 141
 Colonial notes, 3, 20, 38, 83, 383, 410
 Colorado Douglas Fir, the, 381
 Coltsfoot as a garden plant, 221
 Commissions, secret, 351; offered by foreign nurserymen, 284
 Commons and footpaths preservation society, 206
Conandron ramondoides, 365
 Condy's Fluid not permanganate of potash, 224
 Conference on plant hardiness and acclimatisation at New York, forthcoming, 370
 Congo, plants from the, 25
 Conifers, an old work on, 193; at Durris, Aberdeenshire, 217; smoke and frostproof, 318
Cordylina australis in Norfolk, 313; C. *Banksii* in the late Dr. Ramsay's garden, 120
Cordylines, garden species of, 122
 Cornwall, frost in, 77, 93, 141
 Corridor, plants suitable for a, 112, 228
Corynostylis Hybanthus, 101
 Cosmeas, hybrid, the cultivation of, 294
 Cote House gardens, *Schizanthus* at, 389
Cotoneaster rotundifolia, 231
- Cottage gardeners, competitive medal for, 105
 Cotton on fruit bushes, simple tool to fasten, 76, 126
 Country garden, the, 11, 83, 134, 210, 281, 346, 377
 Covent Garden Market, return of "empties," 350
 Cricket, gardeners excel at, 373
 Crick, Mr., diamond wedding celebration of, 254
 Cripple children, a fund to aid, 317
 Crocuses at Hampton Court, 205
 Crops and weather influences, 57
 Croquet lawn, how to plan a, 228
 Culinary plants of the tropics, 42
 Cultural memoranda, 51, 314
 Currant-bud mite, the, 221; destroyed by lime and sulphur, 56, 145; a cure for, 193
 Cushion plants, 311
 Cuttings, propagation by means of, 124
 Cyaniding plants to destroy mealy bug, 46
 Cyclamen, a malformed, 94; culture of, 132
Cyclamen latifolium, the wild form of, 207
Cydonia japonica rosea, 271
Cypripedium Actæus langleyense, 12; C. A. Tracey's variety, 12; C. *californicum*, 418; C. *insigne* "Clare Dow," 21; C. Miss Dora Webb, 132; C. *Morganæ*, 66; C. Mrs. Sutton Willoughby, 66
Cypripediums at Willow Wood, 100
Cytisus albus, 364; C. x *Beanii*, 313

D

- DAFFODIL, "blindness" in, 107, 193
 Daffodils, the pollination of, 271
 Dahlem, biological institute at, 317
 Dahlias, an American paper devoted to, 238; grafted, 254
 Dalkeith Palace, trees and shrubs at, 168
Daphne odora (*indica*) varieties rubra and alba, 101, 193
 Davidson, Mrs. K. L. (*The Unheated Greenhouse*), 366
 Debts owing to fruit-growers for produce, 286
 Decimal system of weights and measures, 190
Dendrobium Dartoisianum, 198; D. *fusiforme*, 337; D. *nobile* with more than 200 flowers, 230; D. *thyrsiflorum* Gallicanum, 399
Dendrobiums at Fir Grange, 198
 Destructive Insects Act, 221
 Disease, root-rot, 361
 Diseases of fruits, charts illustrating some, 140
 Diseases of plants, 209
Dombeya rotundifolia flowering near Pretoria, 20
 Douglas Fir, the, and its varieties, 228, 381; as a timber-tree, 53, 74
 Dresden International Horticultural Exhibition, 173, 238, 253, 318
 Drives and walks, the construction of, 397, 419
 Druce, Claridge (*The Dillennian Herbaria*), 284
 Drummond Castle, trees and shrubs at, 158
 Drying and preserving of plants, the, 372
 Dunkeld, trees and shrubs at, 152
 Durris, Aberdeenshire, Conifers at, 217

E

- EEL-WORMS, gas lime as a remedy for, 15
 Egypt, horticulture in, 300
Elæis guineensis var. *Lisombe*, 394
 Electricity used for killing vine pests, 388

Emigration to Australasia, 3; to New Zealand, 308
 English gardeners in France, 63
 Enkianthus, the genus, 311, 344, 363
 Epidendrum Matthewsii, 399; E. Medusæ, 399; E. rhizophorum, 132
 Epigæa repens, 297
 Eremostachys superba, 365
 Eremurus chinensis, 199; E. Tubergenii, 411
 Erica lusitanica at Kew, 217
 Erinacea pungens, 310
 Eryngium proteæflorum, 248
 Etherisation of Strawberries, 302
 Euphorbia pulcherrima, 45; fertile seeds of, 304
 Events of the week, 332
 Evesham district, fruit prospects in the, 270
 Evesham fruit growers and the question of fruit pests, 74
 Examination for public park employees, 269
 Examinations in horticulture, 157
 Exhibition, a proposed French and British, 123; at Sassenheim, 279; of South African products, 161
 Experiments in pruning fruit trees, 248

F

FASTIGIATE trees, 149, 184, 200
 Fern, an abnormal form of the Elks Horn, 285
 Fern dimorphism, 310
 Fernery, the, 183, 310; a suitable lean-to, 376
 Fern grown in a sealed bottle, 304
 Fern-house in Brussels Botanic Garden, 312
 Ferns, Adiantum, in Covent Garden Market, 150; hardy, in spring, 183; of Western China, the, 57; in Sikkim, 158
 Fig, the reproductive organs of the, 301
 Filberts and Cobnuts, culture of, 81
 Fire at a nursery, 73
 Fir Grange, Weybridge, 411; Dendrobiums at, 198; spring flowers at, 211
 Fir, the Douglas, 53, 73; and its varieties, 228, 381
 Fisher, Prof. (*Quarterly Journal of Forestry*), 301
 Flora of New South Wales, 105
 Florida garden, a, in November and December, 1, 26, 45, 68, 91
 Florists' flowers, 5, 37, 59
 Flower border, planting the, 83
 Flower garden, work in the, 6, 22, 39, 55, 70, 87, 103, 119, 137, 153, 170, 186, 203, 219, 235, 251, 266, 283, 299, 315, 330, 346, 385, 404, 421
 Flower-pots, glazed, 46
 Flower shows at Birmingham, 284, 351
 Flowers and the phylloxera regulations, 206
 Flowers, change of sex in, 57; early spring, 175, 256; in season, 105, 139, 157, 206, 317, 350, 387
 Foliage, poisonous, 374
 Food requirements of hybrid climbing Roses, 301
 Forcing plants by immersion in hot water, 140, 177, 320
 Foreign correspondence, 18, 35, 168, 199, 216, 248
 Foreign horticulturists, dinner in honour of, 371
 Foreign nurserymen and secret commissions, 73, 173
 Forestry, 3, 53, 409; in Germany, 135; a journal devoted to, 301; at Oxford, 74; at the Royal Agricultural Society's Show, 221
 Foster, Sir Michael, the late, 104
 France, English gardeners in, 63
 French, Allan (*The Book of Vegetables*), 342
 French Beans in Covent Garden Market, 150

French Industrial Exhibition, a proposed, 123
 Frenchmen, some noted, 11; 46
 French Riviera, Acacia flowers from, 74
 French touring club offers prizes for beautifying landscape, 388
 Fritillaria imperialis, 287
 Frogmore Gardens, 166
 Frost, effect of, on spring-flowering plants, 159; at Abbotsbury, Dorsetshire, 174; at Whitsuntide, 351; in Cornwall, 77, 93, 141; protecting fruit trees from, by smoke smudges, 318
 Fruit, a new, from Uruguay, 42
 Fruitarian Hospital, the, 414
 Fruit committee of the R.H.S., wanted work for the, 338
 Fruit culture, 115; diagrams of diseases of, 140
 Fruit from Cape Colony, 239; growers, and bad debts, 286; growers' federation, 286; legislation for, 173; growing in Japan, 62; packing, need for grading in, 140; plantations, winter work in, 115, 158, 165; plantations, observation in, 309; spring work in, 245; prospects for 1907, 241; in Canada, 387; in Middlesex, 384; in the Evesham district, 270; in South-East Essex, 423; register, 37, 67, 125, 133, 174, 246, 384; pests in the Evesham district, 74; pests of the season, 343; two neglected pests of, 379; wash, the Woburn, 98
 Fruit trees, boring pests of, 318; gas-tar on, 94; lead-arsenate as a spray for, 271, 304; "lysol" as a winter wash for, 157; spraying, 57; summer pruning of, 400, 424; the action of frost on, 239; the pruning of, 204, 223, 240, 248, 256, 288, 304, 320, 338, 373
 Fruits of Jasminum officinale, 28
 Fruits, seedless, 316
 Fruits under glass, 6, 22, 39, 54, 69, 86, 102, 118, 137, 155, 170, 186, 203, 219, 235, 250, 266, 282, 298, 314, 331, 347, 366, 384, 404, 421
 Fungus pests in Ceylon Botanic Garden, 215

G

GALANTHUS nivalis flavescens fl. pl., 196; G. n. var. virescens, 264; G. plicatus "Romeo," 157
 Galloway House, Wigtownshire, 123
 Gardener appointed as school-manager, 255
 Garden, a Scottish manse, 293; the country, 11, 53, 134, 210, 281, 346, 377
 Gardeners, Anglo-American, 205
 Gardeners: their duties, 211; at cricket, 373; at Kew described as apprentices, 371; foreign, entertained at dinner, 371; in New Zealand, 308, 320; in the United States, 80, 191; the future of, 104; young, and their literary accomplishments, 305, 374; soldier, 423
 Gardener's remarkable length of service, a, 255
 Gardens, cats in, 160, 211; extraneous work in, 211
 Gardening employment in U.S.A., 80; in Madras, 239; sub-tropical, in public parks, 213
 Garden walks and drives, the construction of, 397
 Gas-lime as a remedy for eel-worms, 15
 Gas-liquid for Tomato soil, 32
 Gas tar as an insecticide, 94, 106, 145
 Gattin Park, festivities at, 43
 Gaut, Alfred (*Seaside Planting of Trees and Shrubs*), 328
 Genetics, the Royal Horticultural Society's report of the conference on, 252

Genista acaulis, 21
 Gerbera Jamesoni, 18
 German horticultural exhibitions, 74
 Germany, Lily culture in, 254
 Gladiolus atro-violaceus, 379; G. Peace, 205, 388; G. The Bride, 388
 Glasgow, meteorological notes from, 284
 Glazed flower-pots, 46
 Glaziou, the late M., 157
 Gnidia polystachya, 294
 Gooseberry, a new pest of (mite), 177
 Gooseberry-mildew, the American, 8, 24, 29, 43, 60, 139, 238, 269
 Gooseberry, stock for grafting the, 93
 Grafted Dahlias, 254
 Graft-hybrids, 140, 333
 Grafting, influence of scion upon the stock, 302; side, 201
 Grapes, prices of, 150
 Grape thinnings, 150
 Great Reed, the (Arundo Donax), 364
 Greenhouse at Kew, the, 280, 284
 Greenwich public park, 59
 Grenada, a mountain estate in, 410; a note from, 383
 Gunnera, a hardy, 411
 Gunton Park, Norwich, 34

H

HAARLEM Orchid exhibition, 121
 Hailstorm insurance corporation, 238
 Hampton Court, Crocuses at, 205
 Hanbury, the late Sir Thomas, 205
 Hardy flower garden, the, 83, 410
 Hardy fruit garden, work in the, 6, 23, 39, 55, 70, 87, 103, 119, 136, 153, 171, 186, 202, 218, 234, 251, 267, 282, 299, 315, 330, 347, 366, 384, 405, 421
 Hasluck, Paul N. (*Greenhouse and Conservatory Construction and Heating*), 247
 Heaths, hardy, at Kew, 222
 Heckel, Prof., honoured, 25
 Hedges of Rhododendrons, 16
 Hellebore-blotch disease, 80
 Hellebores, 160; the proper season to shift, 94
 Helleborus corsicus, 233; H. niger in Kew Gardens, 139
 Hemp Magney or Sisal, 317
 Henslow, Rev. Prof. (*Plant Ecology*), 220; (*How to Study Wild Flowers*), 285
 Herbs placed on a coffin, 42
 Hibiscus hybrids, 254
 Hillingdon Court, Middlesex, 319
 Himalayan scenery and vegetation, a lecture on, 162
 Hippeastrum "Queen of Spots," 268; Mrs. Carl Jay, 425
 Hippeastrums, seedling, at Oakwood, Wylam, 199
 Holly Lodge, Highgate, for sale, 317
 Holly, the horned, 125
 Holmes, E. M., collection of Algæ, 73
 Hooker, Sir Joseph, an American appreciation of, 300
 Horticulture, American congress of, 26; in Egypt, 300
 Horticulturists, foreign, dinner in honour of, 371
 Hot-water systems in greenhouses, 16
 Hunnewell's, the late Mr., pinetum, 139
 Hyacinths, prizes for, 302
 Hybridisation of Orchids, 333; the Royal Horticultural Society's conference on, 252
 Hybrid Rhododendrons, hardy, 341, 374
 Hydrangeas in tubs, 374, 424; with blue-coloured flowers, 68, 93, 106, 126, 144
 Hypodermic injections in plants, 8

I

ILEX cornuta,
 Imposition, an, 211, 241, 256
 India, a note from, 400
 Inoculation of soils, a lecture on, 291
 Insecticides for vines, 145
 Insect pests, an Act of Parliament dealing with, 221
 Intercropping of vegetables, 85
 Inverewe, Ross-shire, 153
 Ireland, Apple and Pear culture in, 19
 Irish Potatoes as seed-tubers, 25
 Iris iberica, hardy, at Enfield, 302
 Irises, American species of, 417
 Iron-sulphate for vines, 128

J

JAMAICA and its future, 65; the earthquake at, 43, 122, 138; tobacco culture in, 410
 Japanese garden, plants suitable for a, 96
 Japan, fruit-growing in, 62
 Jasminum officinale fruiting at Hassocks, 28; J. primulinum at Gunnersbury Park, 223; J. p. in the open, 280
 Jerrold, Tom (*Our Kitchen Garden*), 121
 Johannesburg public parks, 239; transplanting large trees at, 263
 Jonquils as pot plants, 241
 Juniperus Cedrus at Teneriffe, 134

K

KALE Chou de Russie, 192, 240
 Kales, a trial of, 192
 Kelf, Geo., Mr., 63
 Kennedya prostrata, 20
 Kensington Gardens, tree-topping in, 204
 Kerchove, Comte de, the late, proposed memorial to, 11, 43, 121
 Kew, Aloes in flower at, 26; Alpine garden at, 365; attempt to obtain poison at, 173; hardy Heaths at, 222; Hellebores at, 139; notes from, 26, 100, 185, 280, 313, 365; the greenhouse at, 100, 280, 284; the lake at, 189; the Palm-house at, 317; the temperate house at, 172; the Rhododendron "dell" at, 386; a seed company at, 269
 Kew gardeners described as apprentices, 371
 Kew Guild dinner, the, 359, 370
 Kinfauns Castle, trees and shrubs at, 118
 Kingston hospital, flower show in aid of, 238
 Kingston, Jamaica, the earthquake at, 122
 Kirklevington Hall, Narcissi at, 295
 Kitchen garden, the, 7, 23, 38, 55, 69, 86, 102, 119, 136, 154, 171, 187, 203, 219, 234, 250, 267, 283, 299, 314, 330, 347, 367, 384, 404, 420
 Klebs, Prof. Dr., 105

L

LABORATORY, a botanical and seed-testing, 268
 Laburnum x Adami, 396; garden varieties of, 404
 Lachenalia Nelsoni, 224
 Lake in Kew gardens, 189
 Lamarck memorial, a proposed, 158
 La Mortola, flowers at Christmas at, 10
 Larch, the Japanese, at Gravetye, 176
 Larix Griffithii at Coldrenick, 130; L. leptolepis at Gravetye, 176

Lathom House gardens, some plants at, 374
Laverna atra (the pith moth), 379
Law, horticultural, 290

LAW NOTES:—Brocks v. Tooth (action for wrongful dismissal), 76; legislation against plant diseases, 29; Lily-of-the-Valley crowns, claim for, 334; railway rates, 176; workmen's compensation policies, 245

Lead-arsenate as a spray for fruit trees, 271, 304

Leaholme, Yorkshire, the rock-garden at, 84

Leaves, propagation by means of, 382

Lecture on Meteorology and its relation to horticulture, 254

Legacies for servants, 388

Lenten Roses from seed, 193

Leny gardens, trees and shrubs at, 118

Leonardslee gardens, 209, 300; a large Camellia at, 208; Magnolias at, 223

Lettuce, Cabbage, Maikönig, 370

Lewisia, the garden species of, 295

Lilies and their characteristics, 361

Lilies attacked by mice, 389

Lilium auratum at Tittenhurst Gardens, 344

Lilium candidum, the market culture of, 116

Lily culture in Germany, 254

Lily of the Valley, retarded crowns of, 4, 46

Lime trees, Mistleto on, 224, 240, 257

Lindley Medal of the R.H.S., 222

"Linnæus" bi-centenary celebration at Upsala, 121, 253, 325, 348

Liriodendron tulipifera at Leonardslee, 209; with deep-orange coloured flowers, 28, 45

Lock, R.H. (*Recent Progress in the Study of Variation, Heredity, and Evolution*), 53

Lonicera Maackii, 264

Lord Howe's Island, 105

Lord Mayor's cripple fund, the, 317

Lucas, Dr. F., 141

Lycaste Skinneri, 66

Lysol as a winter-dressing of fruit trees, 157

M

MADRAS, gardening in, 239

Maeterlinck, Maurice (*Life and Flowers*), 301

Magney or Sisal Hemp, 317

Magnolias at Leonardslee, 223

Maiden, J. H. (*Critical Review of the Genus Eucalyptus*), 302; (*Forest Flora of New South Wales*), 301

Maize, hereditary variations in, produced by mutilation, 41

Mallows, new varieties of, 254

Malt coombs as manure, 128

Manchester Botanic garden leased to a company, 157

Mangel Wurzel, 60

Manica and Sofala, East Africa, a note from, 35

Manila, the gardens of, 216

Mannheim international exhibition, 74, 253, 323

Manure for Carnations, 396; for vegetable garden, 64

Manures and their uses, 120

Manuring of Potatoes, 140

Market Chrysanthemums, 5

Market-gardening business, to start a, 243

Market-gardening, 4, 38, 116, 150, 231, 329, 340

Marrows, custard and bush, 286

Masee, George (*Text Book of Plant Diseases*), 222

Masters, Dr. M. T., botanical works of the late, 377, 398, 418; proposed memorial to, 408

Mathias, Hayward, and P. Smith (*The Modern Carnation*), 136

McColl, W., presentation to, 72

McDonald, Donald, retirement of, 286

McIntyre, Malcom, retirement of, 371

Medal for cottage gardeners, 105

Medeola asparagoides, 13

Megacaryon armenum, 14, 28, 45

Melons scorched by the sun, 32

Meteorological notes from Glasgow, 284

Meteorology and its relation to horticulture, 254

Mice attacking Lilies, to prevent, 389; attacking vines, 79, 92, 125

Michauxia Tchihatcheffii, 365

Mildew, the American Gooseberry, 8, 24, 29, 43, 60, 139, 238, 269

Mildew, the vine, 244

Miltonia and Odontoglossum hybrid, 294

Miltonia Endresii, 21; M. vexillaria × Odontoglossum crispum, 294

Mistleto on Lime, 224, 240, 257

Mohwa tree, the, 207, 223

Moncreiffe, Odontoglossums from, 420

Monilia fructigena (brown-rot of fruit), 379

Monreith, trees and shrubs at, 192

Monroe, Geo., Ltd., concert, 72

Monzie Castle gardens, trees and shrubs in, 168

Motor exhibition, 173

Murthley Castle, trees and shrubs at, 117

Musa Basjoo (syn. japonica), 105, 145; fruiting in Cornwall, 101; M. Ensete as a bedding plant, 193

Mussel scale, the, 222

N

NAMES of garden plants, 17, 91, 138, 146, 156, 193, 333

Narcissus dubius, 246; Narcissi at Kirklevington Hall, Yorks., 295; Homespun and Open Face, 240; failing to flower, 159, 193

National Vegetable Society, a proposed, 93

Nephrolepis exaltata, 14

Neviusia alabamensis as a plant for forcing, 40

New South Wales, a note from, 83; the flora of, 105

New Zealand, gardeners in, 308, 320; international exhibition, awards for plants at, 284

Nice Agricultural Exhibition, 42

Nicotiana Sanderæ hybrids, 193

Nitrogen, free, as plant food, 190

Nomenclature of garden hybrids, the, 138

Nomenclature of plants, 17, 91, 138, 146, 156, 193, 333

Nomenclature, rules regarding, adopted at the Vienna Congress, 17

Novelties in plants during 1906, 4, 27

November and December in my Florida garden, 1, 26, 45, 68, 91

Nursery, fire at a, 73

Nurseryman's diamond wedding, 254

Nurserymen, foreign, offer secret commission, 73, 284

NURSERY NOTES:—Barr & Sons, Ditton, 287; Bull, Wm., & Sons, Chelsea, 26; Carter, Jas., & Co., Forest Hill, 143; Drost, K., Richmond, 264; May, H. B., & Sons, Edmonton, 280; Sutton & Sons, Reading, 142; Veitch, Jas., & Sons, Ltd., Chelsea, 334; Veitch, R., & Son, Exeter 363; Wallace, R., & Co., Colchester, 334

Nymphaea atro-purpurea, 104

Nymphæas, blue, 95

O

OAKS in Bedfordshire, 216

Oak, the Red (*Quercus rubra*), 297

Oak trunk, a large, 216

Oakwood, Wylam, seedling Hippeastrums at, 199

OBITUARY:—Allis, George R., 180; Barnes, Dr. Robert, 323; Bourne, Rev. S. Eugenie, 323; Brandis, Sir Dietrich, 376; Broome, Joseph, 79; Byers, John, 32; Cannell, Ernest A., 395; Cater, R. B., 32; Cochrane, J., 196; Dixon, Abraham, 307; Farmer, Leo, 243; Foster, Sir Michael, 78; Glass, Neil, 243; Hanbury, Sir Thomas, 173; Jerrold, T. S., 64; Johnson, E. Ranger, 380; Kjellman, Prof., 276; Kropatsch, Alois, 276; Kuntze, Dr. Otto, 105; Lane, Frederick Q., 376; Lee, Jessie, 323; McCulloch, Graham, 307; Marshall, John, 180; Masters, Dr. Maxwell Tylden, 368; McHattie, John, 182; Morrison, George, 110; Mertens, E., 276; Oliver, Joseph W., 48; O'Reilly, William, 323; Peeters, Edouard, 15; Ramsay, Dr. Robert Hamilton, 307; Roemer, George, 340; Rolfe, Hon. Mark, 292; Rostrup, E., 141; Schierff, Adam, 105; Strickland, Walter, 122; Temple, William, 307; Upex, J. S., 127; Vickery, John, 148; Wallis, John, 95, 111; Warrington, Prof., 196, 205; Waveren, Hendrick van, 276; White, J. Hill, 260; White, Lynch, 111; Wigan, Sir Frederick, 162; Wigan, Sir Frederick W., 243; Winter, Dr. John Newnham, 64

Ochertyre, trees and shrubs at, 168

Odontioda Bradshawia, 36

Odontoglossum Andersonianum, 399; O. Beauté Celeste ×, 59; O. caloglossum, 76; O. crispum Fowlerianum, 277; O. c. Harrynum F. Sander, 142; O. c. Heatonense, 409; O. c. "Rosemary," 216; O. mulus × at Gunnersbury Park Gardens, 230; O. nobile, 369; O. × Prince Edward of Wales, 303; O. Ruby, 76; O. Wattianum princeps, 135; O. seedlings at Messrs. Bull's nursery, 26

Odontoglossums at Pittsburg, 333; from Moncreiffe, 420

Oenothera, a monograph of the genus, 157

Onion-seed crop in California, 388

Onions, 85

Orchid collecting in the Andes, 156

Orchid-houses, work in the, 7, 22, 38, 55, 71, 86, 103, 119, 136, 155, 171, 187, 202, 218, 234, 250, 266, 282, 298, 314, 331, 346, 367, 385, 405, 420

Orchid hybrids and their parents, a lecture on, 226

Orchid notes and gleanings, 12, 21, 36, 66, 82, 132, 198, 230, 277, 294, 378, 398, 420

Orchids, a sale of, 139, 173, 190, 238, 275; at The Shrubbery, Oxford, 278; Brazilian, 191; new species in the *Kew Bulletin*, 378; sale of the Clare Lawn collection of, 350; the hybridisation of, 333

Orphan Fund, Royal Gardeners', 92, 317, 349, 359; annual meeting, 110

Oxalis adenophylla, 365

Oxford, forestry at, 74

P

PÆONIES in a Japanese nursery, 253; tree, in pots, 257

Palm, a European, 213

Palm-house at Kew, the, 317

Palms, hardy, 254

Pansies as bedding plants, 295

Paphiopedilum villosum, 156

Park, Edith (*Farming for Ladies*), 222

Parks and gardens, the management of public, 5, 23, 38, 54, 70, 86, 103, 118, 137, 154, 170, 187, 203, 235, 250, 267, 282, 299, 315, 331, 347, 367, 385, 405, 420

Parks and open spaces, 28; Birmingham public, 302; sub-tropical gardening in, 213, 235; summer bedding in, 337; in Johannesburg, 239; Swansea public, 304

Pea, Carter's Forcing, 362

Peaches, classification of, 238

Peach-Plum hybrid, 255

Peake, C. M. A., (*A Concise Handbook of Garden Annual and Biennial Plants*), 301

Pear Beurré Diel, 327

Pears, late varieties of, 37, 67, 125, 133, 210

Peas, early and successional, 176; some good autumn cropping, 293; the culture of, on turves, 94

Pelargonium sport, a, 272

Pentstemon ceruleus, 365; P. glaber, 410

Perennial plants for sub-tropical gardening, 336

Pestabozzia Guepini, a fungus pest of Palms, 215

Pests, boring, of fruit trees, 318; in orchard trees, 343

Petunias, hybrid, 239

Pfitzer, the late Prof., 157

Phaius species and hybrids, 343

Pheasants and plants, 14, 28, 46, 77

Phlox subulata lilacina, 383

Phosphatic manures for Asparagus, 41

Photinia serrulata in the open at Leonardslee, 209; the hardness of, 173, 223, 231, 271, 280

Photographs of flowers, coloured, 58

Phylloxera in Kent, 43; regulations on the Continent, 206

Picea morindoides, cones of, 388

Pictures at the Royal Academy, 312

Pieris floribunda, a winter-flowering shrub, 139

Pigmy trees, 253

Pillar plants for the shrubbery, 218

Pineapples in Queensland, 83

Pinetum at Canterbury, 305; the Hunnewell, 139

Pinus canariensis as a bedding plant, 26

Pipes made from the Calabash, 134

Pith-moth, the (*Laverna atra*), 379

Plagianthus Lyallii at Castlewellan, 332

Plane leaves, withering of, 224, 241

Plant houses, water supply in, 14

Plant nomenclature, 17, 91, 138, 146, 156, 193, 333; rules adopted at the Vienna Conference, 42

Plant notes, 13, 19, 101, 116, 183, 247, 294, 310, 363

Plant novelties in 1906, 4, 27, 51, 44

PLANT PORTRAITS:—Acacia podalyriifolia, 247; Aconitum gymnanthum, 25; Aloe pallidiflora, 156; Anthyllis montana, 247; Apple Friandise, 247; Arctostaphylos Manzanita, 238; Begonias, crested varieties of, 98; winter-flowering, 247; Bilbergia nutans, hybrid form of, 98; Blepharocalyx spiræoides, 156; Calophora coronata, 156; Calliandra portoricensis, 238; Campanula grandiflora, 141; Celsia arcturus, 98; Ceratolobus concolor, 96; Chrysopsis villosa var. Rutteri, 247; Coriaria terminalis, 247; Cymbidium erythostylum, 238; Cypripedium insigne Sanderæ, 98; Dendrobium Ashworthia, 370; Diospyros Kaki, 238; Eupatorium glandulosum, 370; Gentiana ornata, 370; Hypericum calycinum, H.

patulum, H. perforatum, H. elodes, 247; *Impatiens Oliveri*, 247; *Iris pumila*, 247; *Lobelia Kathleen Mallard*, 19; *Lomatia ferruginea*, 25; *Meconopsis bella*, 238; *M. punicea*, 89; *Nerine Bowdeni*, 89; *Odontoglossum crispum* var. *Jean Linden*, 98; *O. c.* var. *Mdme. Linden*, 98; *Oenothera Havardii*, 247; *Olearia speciosa*, 89; *Paederota Bonarota*, 247; *Pear Belle Guerdaine*, 247; *Pentstemon linarioides*, 247; *Paphiopedilum villosum*, 156; *Plum Coe's Golden Drop*, 141; *Polygonum Aubertii*, 141; *Primula deorum*, 156; *Pteris lucida medio-picta*, 98; *Renanthera annamensis*, 25; *Rhododendron Delavayi*, 370; *Rhynchanthus Johnianus*, 247; *Ribes Mogollonicum*, 89; *Rose Dean Hole*, 247; *Rose Queen of Spain*, 19; *Rubus platyphyllus*, 19; *Saccolabium rubescens*, 89; *Sweet Peas*, *Helen Lewis* and *Audrey Crier*, 247; *Tamarix pentandra*, 370; *Tricuspidaria dependens*, 25; *Viburnum Carlesii*, 25

Plants absorb water, how, 293
Plants and atmospheric nitrogen, 190
Plants, bedding, 64
Plants, climatic effects on, in the Himalayas, 408
Plants from the Congo, 25
Plants, hypodermic injections in, 8
Plants injured by pheasants, 14, 23, 46, 77

PLANTS, NEW OR NOTEWORTHY:—

Agapetes speciosa, 230; *Ancistrochilus Rothschildianus*, 51; *Clematis quinquefoliolata*, 3; *Clematis Sanderi*, 310; *Disa equestris*, 114; *Odontoglossum X Leo*, 326; *Plagiospermum sinense*, 65; *Pycnostachys Dawei*, 18; *Rhododendron intricatum*, 262; *Strobilanthes Micholitzii*, 246; *Woodwardia paradoxa*, 98

Plants, retarding of, 206
Plants suitable for a dry bank, 271
Plants, suspected poisonous, of Queensland, 254
Plants, the preservation of, by sand-drying, 372
Plants under glass, 7, 22, 39, 54, 71, 87, 102, 118, 137, 155, 171, 186, 202, 218, 234, 251, 267, 283, 298, 315, 330, 346, 367, 385, 405, 421
Plants with poisonous foliage, 374
Platycerium alcinorne, an abnormal form of, 285
Pleione yunnanensis, 152
Plum, a graft hybrid, 140
Plumbago rosea, propagation and culture of, 19
Plum X Peach, hybrid, 255
Pobéguin, M. (Essai sur la Flore de la Guinée Française), 86
Podophyllum versipelle, 365
Poinsettias, the culture of, 51
Poisons, horticultural, Bill to permit sale of, 146
Polemoniaceæ, a monograph of the genus, 191
Pollination of Daffodils, the, 271
Polygala chamæbuxus, 297
Polygonum Balduianum, 399
Pond, valve for a, 79, 96
Pond weeds killed by copper sulphate, 140
Pontederia crassipes, a pest in Australia, 41
Portuguese East Africa, 35
Postcards, trading by means of, 140
Potato, immature "seed," 412; *Midlothian Early*, 388; seed tubers, 10; trials at Reading, 10; at Wisley, 202
Potatoes, Irish, as seed-tubers, 25; manuring of, 140; *Violet Commersoni* and *Blue Giant*, 140, 173
Poultry, a conference on, 370

Pouteria suavis, fruits of, for garden purposes, 42
Presdales near Ware, 97
Pretoria, a note from, 20
Prevention of Corruption Act, 11, 42, 60, 73, 93, 105, 173; and foreign nurserymen, 73, 284
Primrose, a green, 304
Primroses, market varieties of, 240
Primrose with succulent foliage, 332, 372
Primula sinensis alba plena, 247; *P. deorum*, 156; *P. X Kewensis*, 77; *P. Palinuri*, the home of, 19; *P. stellata* as two-year-old plants, 148; some hardy species of, 379; *P. X Unique*, 390
Propagating Roses and conifers, 75
Propagation of plants by means of leaves, the, 382
Propagator, the, 75, 124, 207, 264, 329, 382
Pruning of fruit-trees, the, 204, 223, 240, 248, 256, 288, 304, 320, 338, 373; of Roses, the, 181, 200; summer, report on the effects of, 400, 406; in the Transvaal, 407
Pseudomonas campestris (black-rot disease of Cabbages), 371
Pseudotsuga Douglasii, 53, 73; and its varieties, 228, 381
Psylla Mali, the Apple sucker, 338
"Punch" pictures for Paris, 300
Punnett, R. C. (*Mendelism*), 158
Pyrus Sorbus, the history of, 236; beverage made from the fruits of, 272

Q

QUEENSLAND, Pineapples in, 83; sugar-growing in, 83; weeds and suspected poisonous plants of, 254
Quercus rubra, the red Oak, 297
Quicklime for Currant-bud mite, 145

R

RAILWAY rates for garden produce, 176
Rainfall at Leonardslee, 105; in Co. Down, 77; in 1906, 57
Ranawara Tea, 334
Ranunculus rutæfolius, 100
Raspberries and brambles, 33, 77
Rates for market gardens, 308
Rats, poison for, 192; and pheasants in the garden, 93
Rendle, Dr., and J. Britten (*British Plants*), 285
Reproductive organs of the Fig, 301
Research, 73
Retarding plants, 206
Retinosporas, 217
Rhemania angulata, 364
Rhododendron barbatum, 26, 60; "dell" at Kew, the, 386; Duke of Cornwall, 407; hybrid, hardy, 341, 374; hybrid, a hardy yellow-flowered, 389; *R. indicum* (*Azalea*), at Leonardslee, 280; *R. racemosum*, 313; *R. X sesterianum*, 363
Rhododendrons as hedge plants, 16; in the Royal Botanic Gardens, Regent's Park, 383, 407; the cultivation of, 335
Rhubarb at Christmas, 80; *Burbank's Crimson Winter*, 106; show in 1858, 126
Ribes aureum as a stock for the Gooseberry and Red Currant, 93
Ridley, H. N., 173
Rock garden at Dunfermline, 121; at Lealholm, Yorkshire, 84
Romulea puleia, 183
Root-rot fungus (*Thielavia basicola*), 361
Rosa lævigata, 388; *R. Wichuriana*, 260, 271

Rosary, the, 13, 36, 84, 114, 133, 232, 266, 296, 313, 345, 382
Rose Aennchen Müller, 349; canker, 313; conference at Mannheim, 408; culture in pots, 36; Frau Karl Druschki, 233; garden, work in the, 13, 133, 232, 296, 345; growers, amateur and professional, in America, 371; Paradise, 380; Penelope, 333; rust, disease of, 396; stems bored by bees, 64; the Cherokee, 388
Roses, cultural notes on, 13, 75, 133, 181, 200, 232, 296, 345; early varieties of, 412; for market supply, 128; hybrid climbing, experiments in feeding, 301; in pots, 60; new, of British origin, 266; proof against mildew in Australia, 333; rambling, varieties of, 382; the propagation of, 75; the pruning of, 181, 200
Rothamsted agricultural station, donations to, 63; the weather at, in 1906, 52
Rubber culture in Ceylon, 11
Rubber-producing trees, 300
Rubus, garden species of, 77; species with whitish bark, 107; the terminal buds of, in winter, 388
Rubus quentlandicus, 77
Rudbeckia Heliopsis X, 72
Ruellia Portellæ, 101
Ruscus aculeatus, 116; *R. racemosus*, 116
Ruskin's works, cheap edition of, 103

S

SALTER, C. J., Mr., 63
Salvia splendens compacta "Zurich," 338; *S. s. compacta*, 13
Sanders, T. W. (*Alphabet of Gardening*), 410
San Francisco after the earthquake, 73
Sangwin, W., retirement of, 25
Saxifraga Boydii, the history of, 95
Scale, the Mussel, 222
Schlich, Dr. (*Manual of Forestry*), 191
Schizanthus at Cote House gardens, 389

SCIENTIFIC COMMITTEE:—*Abies lasiocarpa*, 77; *Agapetes speciosa*, 224, 241; *Amaryllis* bulbs and mites, 27; Apple canker, 126; Apple mildew (*Sphaerotheca mali*), 77; Apple-spotting caused by heat, 126; Apples, the relation of colour in the flowers and fruits of, 339; *Aquilegia*, spurless, 412; *Auricula* with petaloid stamens, 305; with striped petals, 272; *Bramble*, a fasciated, 126; Bulb mites, how to destroy, 77; Cabbage in Patagonia, 178; Carnation, axile proliferation in, 242; curious contortion in a, 305, 338; *Carum nigrum*, fruit of, 412; Caterpillars on Gooseberries, 126; Cedar, a spirally twisted, 412; *Ceropegia Woodii*, seeds of, 305; Chili, Narcissi from, 241; *Colletia spinosa* synonymous with *C. cruciata*, 241; Conifers, some uncommon, 77; *Cotyledon macrantha*, 178, 224; *Crinum*, African species of, 272; *C. giganteum*, 305; *C. Macowanii*, 305; *Cyclamen*, a malformed, 178; with adventitious flower-buds in the axils of the sepals, 224; Cyaniding plant-houses, 46; *Cypripedium*, a malformed, 46, 77, 126, 178; Daffodils flowering without roots, 126; Destructor, refuse from a dust, as manure, 77; Fern growing in a sealed bottle, 338, 412; *Gaster fornicatus*, 305; Genetics, the study of, 412; *Gladiolus* corms diseased,

178; Gooseberry bushes, the pruning of, 272; Gooseberry mildew, English, 77; Gooseberry shoots diseased, 77; Gooseberries, caterpillars on, 126; Grapes, shanking of, 46; *Gymnosporangium Clavariiforme*, 338; Hawthorn leaves coloured red through injury by insects, 305; Hellebore, a diseased, 46; Henry, Dr., travels of, in America and Europe, 126; *Hippeastrum X Vallota*, 241; Kale, Asparagus, dying, 224; Lenticels in *Laburnum*, 178; Magnolias and mealy bug, 46; Manure from dust destructors, 77; Masters, the late Dr. M. T., 412; Mealy bug, to destroy, 46; *Miltonia vexillaria*, a malformed flower of, 412; Mistletoe, monœcious, 46; Narcissi from Chili, 241; Oak, fungus on, 178; Oak galls, 224; Orchid hybrid, 224; *Pelargonium* sport with regular flowers, 305; *Phaius* hybrids, pollen of, 241; *Phyllosticta violæ*, a disease of Violets, 224; *Picea orientalis*, inflorescence of, 339; *Pinus Malletii*, 77; *P. ponderosa*, 77; *Pistacchio* nuts eaten by insects, 412; plants exhibited, interesting and rare, 272; plants, rare British, 412; *Pleurothallis*, a rare species of, 46; Plum-Peach hybrid, 272; Potato species and varieties, 177, 339; Potato, winter-rot disease of, 242; Primrose leaf, a succulent, 242; *Ravenala madagascariensis*, seeds of, 178; *Retinospora* attacked by a fungus, 305, 338; *Ribes sanguineum* with abnormal double flowers, 339, 412; *Richardias* with spathaceous leaf, 339; Roses, dying of, 77; Seeds, curiously-coloured, 178; Sloe with swollen stem, 224; *Sphærotheca mali*, the Apple mildew, 77; Stocks attacked by a slime fungus, 77; *Tchihatchewia isatidea*, 272; *Torreya myristica*, 77, 117, 168; *Trichilia indica*, seeds of, 178; *Vallota X Hippeastrum*, 241; *Viburnum*, intumescence in, 178; Violet disease (*Phyllosticta violæ*), 224; *Widdingtonias* in the Transvaal, 126; Winter-rot of Potatoes, 242; Wood coloured green by a fungus, 272
Scion, influence of, on stock, 302
Scoliopus Bigelowi, 256
Scone Palace, trees and shrubs at, 117
Scottish gardens, trees and shrubs in, 117, 152, 168
Scottish Manse, garden in a, 293
Seed and Nursery Trade employees, proposed union of, 271
Seedless fruits, 316
Seeds, sowing small, 106
Seed testing, a laboratory for, 268
Semele androgyna flowering in the open in Devon, 350
Senecio pulcher, the culture of, 83
Sequoia sempervirens, date of introduction of, 390
Sex in flowers, change of, 57
Shasta-fir, the, 114
Shells, crushed, as a fertiliser, 339
Shrewsbury flower show, prizes for vegetables at, 74, 122
Simpson, John (*Game and Game Courts*), 418
Sinningia Helli, 342
Sisal hemp, 317
Slugs and broken bricks, 373
Slugs and snails, how to trap and destroy, 303
Slugs in gardens, 389
Slugs killed by sulphate of iron, 285
Smeaton-Hepburn, trees and shrubs at, 168
Smith, Worthington G., awarded the Veitchian medal, 104, 188
Smoke-mudges in an Evesham orchard, 318

Snails, how to trap and destroy, 303
Snowdrop, the green, 264; the yellow, 198
Snowdrops from Ireland, 157

SOCIETIES:—American Carnation, 146; Association of Economic Biologists, 47; Bath and West and Southern Counties, 375; Beckenham Hort., 47, 147, 180; Birmingham Botanical and Hort., 413; Brighton and Sussex Hort., 147; Bristol and Dist. Gardeners', 179; British Gardeners' Association, 40, 127, 146, 173, 205, 270, 307, 338, 375; Cardiff and County Hort., 96; Cardiff and Dist. Chrys., 146; Cardiff Gardeners', 47; Chester Paxton, 47, 179; Cornwall Daffodil and Spring Flower, 242; Coventry Chrys., 127; Crawley and Dist. Gard., 47, 147; Croydon and Dist. Hort., 47; 180, 275, 307; Debating, 47, 147, 227, 274, 307; Devon and Exeter Gardeners', 179; Devonshire Daffodil, 259; Dorchester Gard., 179; Guildford and Dist. Gard., 47, 307; Hailstorm Insurance Corporation, Ltd., 238; Horticultural Club, 109, 162, 292, 339; Hunts Daffodil, 274; Kew Guild, the, 359; Leeds Professional Gardeners', 162; Linnean, 31, 78, 126, 226, 274, 306, 413; Manchester and North of Eng. Orchid, 31, 62, 95, 162, 195, 226, 260, 323, 375; Midland Daffodil, 272; Nat. Auricula and Primula, 139; (Midland Section), 305; (Southern Section), 290; Nat. Carnation and Picotee (Southern Sect.), 15; Nat. Chrysanthemum, 127, 147, 428; (annual meeting), 95; Nat. Potato, 63, 78, 104, 157; Nat. Sweet Pea, 157; Nursery and Seed Trade Association, 292; Reading and Dist. Gard., 47, 179, 275; Redhill, Reigate, and Dist. Gard., 147, 180, 307; Royal Botanic, 228, 274, 393; Royal Horticultural, 30, 61, 68, 104, 107, 139, 160, 194, 224, 267, 288, 321, 391, 425; (Temple Flower Show), 352; Royal Hort. of Ireland, 15, 242; Royal Meteorological, 15, 146, 211, 292, 340; Royal National Tulip, 339; Royal Scottish Arboricultural (Aberdeen Branch), 292; Salisbury and Dist. Gard., 179; Scottish Hort. Assoc., 14, 109, 127; Sevenoaks Gardeners', 180; Shropshire Hort., 127; Société Française d'Horticulture de Londres, 62; Southampton Royal Hort., 146; United Hort. Benefit and Provident, 178, 394; Vienna Hort., 141; Wargrave and Dist. Gard., 180, 307; Winter-flowering Carnation, 178; Yorkshire Gala, 413
Soil inoculation, a lecture on, 291; the influence of bacteria in, 386; the sterilisation of, 129, 152, 159, 182

Solanum Commersonii, Labergerie's variety, 11
Soldiers as gardeners at Colchester, 423
Sorauer, Dr. (*Handbuch der Pflanzenkrankheiten*), 209
South African Products Exhibition, 141, 157, 161
South-West, effect of winter in the, 270
Spiræa arguta, 363
Sports, Chrysanthemum, 37, 301
Spraying fruit-trees in winter, 42, 57
Spray, lead arsenate as a, 271, 304
Spring flowers at Fir Grange, 211; Broccoli, 241; flowers, 175, 256
Stereoscopic flower slides in natural colours, 58
Sterilisation of soil, the, 129, 152, 159, 182
Storm in Co. Mayo, 28
Strasburger, Dr. (*Rambles on the Riviera*), 69
Strawberry, a proliferous, 308; Kentish Favourite, 389, 423; Royal Sovereign, 304, 320, 337, 373
Strawberries, deterioration in, 268, 304; forcing, after etherisation, 302
Sub-tropical gardening in public parks, 213; perennial plants for, 336
Sugar canes, seedling, 423
Sugar-culture in Queensland, 83
Summer pruning of fruit-trees, report on, 400, 406; in the Transvaal, 407
Sundial, adjustment of a, 324
Swanley Horticultural College, the, 221
Swansea, Tulips in the public parks at, 304
Swede, Sutton's garden, 94
Sweet Peas of recent introduction, 208; flowering in January, 28; the culture of, 90; the sowing of, 106, 144
Sweet William, a disease of, 244

T

Tar as an insecticide, 45, 60, 94, 145
Tasmania, emigration to, 3
Tea, Ranawara, 334
Temple, Augusta A. (*The Flowers and Trees of Palestine*), 285
Temple Flower Show, 320, 348, 352
Teneriffe, *Juniperus Cedrus* at, 134
Teratology, vegetable, a new work on, 302
Tervueren, arboretum at, 122
Thalictrum, the species of, 113
The Heights, Witley, 197
The Shrubbery, Oxford, Orchids at, 278
Thielavia basicola, root-rot fungus, 361
Thomas, Edward (*The Book of the Open Air*), 222
Threader, a simple, 76, 126
Timber supplies, our future, 409
Timber-tree, Douglas Fir as a, 53
Tittenhurst, *Lilium auratum* at, 345

Tobacco culture at the Royal Botanic Gardens, 157, 190; in Jamaica, 410
Tomato culture for market, 231
Tomatos and gas-liquid, 32
Torreya californica, 209; T. c., seedling forms of, 99
Transon, M., 11
Transplanting an old Yew tree, 222, 408
Transvaal, native trees of the, 239
Tree-ferns in Sikkim, 158
Tree Pæonies in pots, 257
Tree stems, the earthing of, 366
Trees and shrubs, 99, 125, 209, 217, 231, 264, 280, 297, 327, 366, 380, 404
Trees and shrubs in Scottish gardens, 117, 152, 168, 192
Trees, dead wood on, 366; fastigate, 149, 184, 200; of the Transvaal, 239; pigmy, 253; rare, at Coldrenick, 130; transplanting large, 222; in Johannesburg, 263
Tree topping, 204
Trespass, the law of, 388
Trillium grandiflorum, 412
Trilliums, species and varieties of, 328
Tropical culinary plants, 42
Tubs, Hydrangeas in, 374
Tulip, a branched, 157
Tulip disease, its prevention or cure, 168
Tulips in the Victoria Park, Swansea, 304
Tulip tree with deep-orange coloured flowers, 28, 45

U

UNITED States of America, gardening employment in, 73, 80, 191
Upsala, Linnæus bi-centenary celebrations at, 325, 348

V

VALVE for a pond, 96
Vanda tricolor suavis, 420
Vegetable garden, manure for, 64
Vegetables, 13, 37, 66, 85, 192, 201, 247, 293, 327, 362
Vegetables at Shrewsbury, prizes for, 93
Vegetation and climate, 42
Veitch medallists of the year, 188
Veitch Memorial Trust, 104
Ventnor, the season at, 193
Viburnum Carlesii, 327; V. utile, 381
Vienna, horticulture at, 74, 141
Vine mildew, 244
Vine pests destroyed by electric current, 388
Vines eaten by mice, 79, 92, 125; inarching of, 276; insecticides for, 145; iron sulphate for, 128
Vintage in France in 1906, 57
Violets in pots and frames, the culture of, 28, 46

W

WALKS and drives, the construction of, 397, 419

Y

Wanstead Park, improvements at, 388
Wash, the Woburn, 98
Wasps, a big haul of, 105
Water-courses, the cleaning of, 170
Water, forcing by means of, 177; how plants absorb, 293; supply of, in plant houses, 14; tanks, the cleansing of, 29
Water-Hyacinth a pest in Australia, 41
Water-Lilies, blue, 95
Watsonia Ardernei, the culture of, 373, 389
Weather and the crops, 57; in Cornwall, 223; in Devonshire, 304; in West Herts., 223
Webber, Dr. Herbert (appointment at Cornell), 73
Webb, Wilfred Mark, (*The Principles of Horticulture*), 247
Weeds and suspected poisonous plants of Queensland, 254
Wellingtonia, a tree of, and its record of forest fires, 73
West Indies, Agricultural Conference at, 188; seedling sugar canes in the, 423
Wildeman, E. de (*Congo Flora*), 298; (*Mission Emile Laurent*), 298
Willard, Jesse, Mr., 157
Willow, change of sex in, 57
Willows, ornamental, 366
Willow Wood, *Cypripediums* at, 100
Wilson, E. H., in China, 422
Wilton Park, Beaconsfield, 151
Wiltshire, W. D. (*Floral Designs*), 301
Winter in 1660-61, a mild, 14
Winter work in fruit plantations, 115, 158, 165
Wisley Gardens, 177; Kales at, 192; new laboratory at, 233; trials at, 2, 85
Wistaria at Lathom House Gardens, 374
Wood, dead, on trees, 366
Wood Leopard moth, the, 96
Woods for everybody, 3
Workmen's Compensation Act, 206, 255
Wren, Thomas Henry, legacy to, 141
Wright, Walker, P. (*Beautiful Gardens*), 269
Wroe, J. B. (*Chrysanthemums, and How to Grow Them for Exhibition*), 73
Wye Agricultural College, 139, 253, 333

Z

YEW, transplanting an old, 222, 408
Yorkshire Gala, 389, 413
Young, W. H., Mr., 270
ZAUSCHNERIA californica, the culture of, 314

SUPPLEMENTARY ILLUSTRATIONS.

BRYOPHYLLUM CALYCINUM (June 29)
CEANOTHUS THYRSIFLORUS IN FLOWER AT KEW (April 6)
CEYLON BOTANIC GARDEN, PERADENIYA, AVENUE OF CORYPHA UMBRACULIFERA IN THE (February 9)
COLCHICUM AUTUMNALE FLOWERING IN THE GRASS AT KEW (January 26)
CORDYLINA BANKSII FLOWERING IN THE LATE DR. RAMSAY'S GARDEN, TORQUAY (February 23)
FLOWER-BED AT KEW PLANTED WITH SUCCULENTS AND PINUS CANARIENSIS (January 12)
GLADIOLUS "PEACE" (March 30)
HELLEBORES AND FERNS IN THE ROYAL GARDENS, KEW (March 2)
HIPPEASTRUM QUEEN OF SPOTS (April 27)
INTERNATIONAL HORTICULTURAL EXHIBITION OF 1866; THE EXECUTIVE COMMITTEE OF THE (June 8)
LARK IN THE GARDENS AT KEW (March 23)

LEONARDSLEE, HORSHAM, VIEW IN THE AMERICAN GARDEN (May 11)
MASTERS, PORTRAITS OF THE LATE DR. MAXWELL TYLDEN (June 8)
NEVUSIA ALABAMENSIS, A PLANT OF, IN THE TEMPERATE HOUSE, KEW (January 19)
NYMPHÆA ATRO-PURPUREA (February 16)
ORCHID COLLECTING IN THE ANDES (March 9)
PÆONIES, A FIELD OF, IN JAPAN (April 20)
PLAGIANTHUS LYALLII IN THE GARDENS AT CASTLEWELLAN (May 25)
RHODODENDRON "DELL" AT KEW (June 15)
RHODODENDRON DUKE OF CORNWALL (June 22)
ROSE AENNCHEN MÜLLER (June 1)
RUDBECKIA HELIOPSIS × (February 2)
VIEW IN THE GREENHOUSE, KEW (May 4)
VIEW IN THE PALM-HOUSE, KEW (May 18)
VIEW IN THE TEMPERATE HOUSE, KEW (March 16)

(For List of General Illustrations in the text see next page.)

LIST OF ILLUSTRATIONS

- A**
ABIES magnifica var. *xanthocarpa*, cones, foliage, bracts and scales of, 114, 115
Abies nobilis, *A. magnifica* var. *xanthocarpa*, and *A. magnifica*, cones of, 144
Acacia caffra growing wild in the Transvaal, 20
Acantholimon echinus, a cushion plant, 311
Agapetes speciosa, 237
American Gooseberry mildew, the, 43
Ancistrochilus Rothschildianus, 50; *A. Thomsonianus*, 51
Anemone blanda var. *scythinica*, 297
Ansellia gigantea, 362
Apple Ard Cairn Russet, 174
Apples, Encore, 3; High Canons, 133; Ross Nonpareil, 182
Araucaria imbricata, with upright basal growths, 100
Artist working under difficulties, our, 189
Asparagus falcatus in flower, 82
Asparagus-packing at Evesham, 329
Auricula Miss Berkeley, 286
- B**
BAKER, John Gilbert, V.M.H., 191
Balaninus nucum (Nut weevil), 81
Banana, a hardy, 101
Bartlett, A. C., portrait of, 6
Beech, a pyramidal, 151
Bees, apparatus for feeding, 251
Begonia Gloire de Lorraine, female flowers and seed capsules of, 145; seedlings of at Cleveley gardens, 29; *Gloire de Sceaux*, 267
Betula alba var. *pyramidalis*, 151
Brasso-Cattleya Mrs. J. Leemann var. *Rajah*, 351
Brasso-Lælio-Cattleya Fowleri, 303
Bryophyllum crenatum, 419
- C**
CALANTHES flowering at Oakwood, Wylam-on-Tyne, 91
Calceolaria, Veitch's hybrid, 426
Camellia, a large, in the open at Leonardslee, 208
Carnations, a group of *Souvenir de la Malmaison*, exhibited at Westminster, 175
Cat used as a bird scarer, 189
Chamærops humilis var., 214
Chittenden, F. J., 233
Choisya ternata, a flowering spray of, 387; flowering in Fir Grange gardens, 382; flowering for the third time in one season, 53
Chrysanthemums Miss H. Hampson and *Thyrza* Cherry, 9
Cockchafer or May bug, 80
Cologyne x *Colmanii*, 108
Cones of three American Silver Firs, 144
Cordylina australis in a Norfolk garden, 313; *C. indivisa* and *C. australis* at Enys, 123
Cratægus Oxyacantha var. *stricta*, 184
Cyclamen latifolium, the wild form of, 207
Cypripedium Actæus langleyense, 12; *C. californicum*, 418; *C. Morganii* x, a well-grown plant of, 66
Cypripediums at Willow Wood, Riding Mill-on-Tyne, 99
- D**
DENDROBIUM fusiforme, 337
Dombeya rotundifolia flowering near Pretoria, 21
- E**
ELM, the Wheatley, 150
Erinacea pungens in Cambridge Botanic Garden, 310
Eryngium proteæforum, a plant of, 248; flowers of, 249
Eucharis grandiflora, a fine batch of, 71
- F**
FERN-HOUSE in the Botanical Garden, Brussels, 312
Ferns, tree, in Sikkim, 158
Ficus cordata overgrown with *Telfairia pedata*, 35
Filbert shoot, a properly-pruned, 81
Fir Grange, Weybridge, 411
Foster's, the late Sir Michael, garden at Shelford, 78, 79
Fruit-trees protected from frost by means of smoke-smudges, 318
- G**
GLADIOLUS atro-violaceus, 378; *G. The Bride*, 398
Gloxinias exhibited at the Temple flower show, 364
Gnidia polystachya, 294
Gooseberry mildew, the American, 43
Grafting, cleft and tongue, 186; side, 201
Greenwich Park, a bed of succulent plants in, 67; the lake in, 58
- H**
HANBURY, the late Sir Thomas, 172
Helleborus corsicus, 232
Hillingdon Court, a water garden at, 319
Hippeastrum "Mrs. Carl Jay," 424
Hippeastrums, hybrid, at Oakwood, Wylam, 199
Honess, W., portrait of, 7
- K**
KALE Chou de Russie, 242
Kirk, Alexander, portrait of, 6
- L**
LABORATORY in Wisley Gardens, the, 233
Lælio-Cattleya "Golden Glory," 357
La Mortola, the residence of the late Sir Thomas Hanbury at, 167; view in the garden at, 169
Larix Griffithii, a tree of, at Coldrenick, 130; branch with cones, 131
Lealholme, Yorkshire, views in the rock garden at, 84, 85
Lilium auratum flowering in Tittenhurst gardens, 345
"Linnaeus" Hall, Upsala, 326
Linné, Carl von, 325
Lonicera Maackii, 265
- M**
MAY BUG or cockchafer, 80
Mayne, J., portrait of, 6
Medal of the Sweet Pea Society, 157
Mildew, the American Gooseberry, 43
Moræa iridioides, 297; "Johnson's variety," 296
Morrison, George, the late, 110
Musa Basjoo fruiting in the open at Cornwall, 101
Museum and "Linnaeus" Hall at Upsala, 326
- N**
NARCISSI dubius, 246; Homespun, 240; Open Face, 241
Neviusia alabamensis, a flowering branch of, 41
Nut weevil, the, 81
- O**
OAK, the Cypress, 149
Oak trunk, a large, 216
Odontioda Bradshawii x, 36
Odontoglossum Aliceæ x, 26; *O. Beauté Celeste* x, 59; *O. caloglossum*, 76; *O. crispo-Harryanum* "F. Sander," 142; *O. crispum Fowlerianum*, 278; *O. c. Heatonsense*, 409; *O. c. Lord Cromer*, 352; *O. c. Prince of Asturias*, 353; *O. c. Rosemary*, 217; *O. Prince Edward of Wales*, 302; *O. x Phœbe magnificum*, 355; *O. "Ruby,"* 76; *O. Wattianum princeps*, 135
Orange Excelsior, 124
Orchid seedlings, a house full of, 75; at Messrs. Bull's nursery, 75; a group of, exhibited at the Temple Flower Show, 372
- P**
PALAZZO Orenco, the Italian residence of the late Sir Thomas Hanbury, 166
Pear Beurré Diel, a bush-trained specimen of, 327
Pear Bliccking, 34
Pestalozzia Guepini, a fungus disease of Palms, 215
Pettigrew, W., portrait of, 5
Phaius species and hybrids, 343
Phlox subulata lilacina, 383
Pipe, the Calabash, 134
Pleione yunnanensis, 152
Polygonum Balduanum, 399
Portuguese East Africa, a plantation of Agaves in, 35
Primrose leaf, a succulent, 332, 333
Primula sibirica, an improved variety of, 350; The Czar, 143; *P. Palinuri*, 18; habitat of, 19; *P. pulverulenta* flowering in Coombe Wood nursery, 391; *P. x Unique*, 390
Plagianthus Lyallii, a flowering spray of, 335
Plum-Peach hybrid, flowers of 256; foliage of, 257
Pyrus pinnatifida var. *fastigiata*, 185
- Q**
QUERCUS pedunculata var. *fastigiata*, 149
- R**
RHODODENDRON intricatum, 262
Robinia pseudacacia var. *fastigiata*, 151
Root-rot disease of plants, 361
Rose, a proliferous, 416
Rose Paradise, 380
- S**
SASSENHEIM exhibition, flower beds at the, 279
Schizanthus, a strain of, 365
Seed capsules of *Begonia Gloire de Lorraine*, 145
Seedling Orchids at Messrs. Bull's nursery, 75
Side-grafting, 201
Sinningia Helli, 342
Smith, Worthington G., portrait of, 188
Smoke-smudges in an Evesham orchard, 318
Sophro-Lælia "Phrosa superba," 281
Spring-flowers, a group of, 177
Strawberry, a proliferous, 308
Succulent plants at Greenwich Park, 67
Sweet Pea Society's medal, 157
- T**
TELFAIRIA *pedata* in Portuguese East Africa, 35
Temple, the late William, 307
Thielavia basicola, a fungus causing root-rot, 361
Thuya plicata (gigantea) a pyramidal shaped tree of, 200
Tittenhurst Gardens, *Lilium auratum* flowering in, 345
Tree-ferns in Sikkim, 158
Trillium grandiflorum flowering in Sir Herbert Maxwell's garden, 412
- U**
ULMUS campestris var. *Wheatleyi*, 150
Upsala, the museum and "Linnaeus" Hall at, 326
- V**
VIEW in an Evesham orchard in spring time, 270
Viola gracilis, 348
Violets as pot plants, 27; growing in a frame at Cokethorpe Park, 28
- W**
WALLIS, John, portrait of the late, 111
Weston, J. G., portrait of, 7
White, W. H., portrait of, 7
Wisley Gardens, the new laboratory in, 233
Wood Leopard moth, the, 96
- Y**
YEW, a globose, in the grounds of Cherkeley Court, 306



THE Gardeners' Chronicle

No. 1,045.—SATURDAY, January 5, 1907.

CONTENTS.

Apple Encore ...	8	Nephrolepis exaltata ...	14
Books, notices of—		Obituary—	
Foresters' Pocket		Peeters, Edouard ...	15
Diary (Webster's)...	8	Orchid notes and glean-	
Lindenia ...	12, 14	ings—	
Succulente Euphor-		Cypripedium Actæus	
bien ...	18	Langleyense ...	12
Publications received		C. A. Tracy's variety	12
Biology, Economic ...	11	Pheasants and plants ...	14
Brandegee herbarium ...	10	Plant-novelties ...	4
Cabbages, autumn and		Plants, fluids injected	
winter ...	18	into ...	8
Canal and railway banks,		Plants new or note-	
planting of ...	10	worthy—	
Carbolineum as an in-		Clematis quinquefo-	
secticide and fungicide	14	liolata ...	3
Colonial correspon-		Potato - demonstrations	10
dence—		Prevention of Corruption	
Emigration to Austr-		Act, the ...	11
lasia ...	3	Rosary, the—	
Chrysanthemums, single		Memoranda for Janu-	
Country garden, the ...	11	ary ...	18
Florida garden, Novem-		Rubber culture ...	11
ber and December in		Salvia splendens comp-	
my ...	1	acta ...	18
Florists' Flowers, Chry-		Societies—	
santhemums ...	5	National Carnation	
Forestry—"Woods for		and Picotee ...	13
Everybody" ...	8	Royal Hort. of Ireland	15
Gooseberry-mildew,		Royal Meteorological	15
American ...	8	Scottish Horticultural	15
Hot-water systems ...	16	Solanum Commersoni...	11
Kerchove Memorial, the		Water supply in plant	
La Mortola, flowers at	10	houses ...	14
Medeola asparagoides...	18	Week's work, the ...	5, 6, 7
Megacarpaea armena ...	14		

ILLUSTRATIONS.

Apple Encore ...	2
Bartlett, A. C. ...	6
Chrysanthemums Miss H. Hampson and Thirza Cherry	9
Cypripedium Actæus Langleyense ...	12
Honess, W. ...	7
Kirk, Alex. ...	6
Mayne, J. ...	6
Pettigrew, W. W. ...	5
Weston, J. G. ...	7
White, W. H. ...	7

NOVEMBER AND DECEMBER IN MY FLORIDA GARDEN.

FLORIDA is a country rarely visited by frost, and is always a glorious land. The sun god finds so much of beauty here that he kisses all the land with his tenderest, softest touch; and the rains come but to caress. Though the golden orange gleams in the dark foliage, it is not the land of the golden dollar, for riches are not accumulated here, as in some other parts of this "land of unlimited possibilities," but Florida offers simply an ideal life in an ideal climate.

The autumn months are, in Florida, the season when plant-life has reached its greatest development and perfection. The rainy period is then over, and the air becomes cooler, drier, and more invigorating. The mocking bird, who paused for months, sings again, but its melodies are now far sweeter, lower, softer, and more sustained than in early spring-time, when it simply bursts out in loud and joyous exultation. In the north, spring-time is the season of inspiration, hope, and promise—the season of flowers and bird-song, while autumn is the time of the serene and yellow leaf. William Cullen Bryant characterises November in the following lines:—

"The melancholy days have come, the saddest of the year,
Of wailing winds and naked woods, and
meadows brown and sere."

How different is all this in Florida, where, in November, the days are bright and sunny, cheerful and inspiring. The woodland floor is still covered with a carpet of bright and brilliant blossoms. The woods, where Magnolias and wild Olives (*Osmanthus americana*) live, and in which Oaks and Cabbage palmetto (Palms) predominate, show a deep, glossy green hue, which is so intensely bright in this glorious sunshine that the rays of light are constantly reflected, and sparkle in endless flashes, as if innumerable small mirrors were suspended among the foliage. This is a very characteristic feature of woodlands in which *Magnolia grandiflora*, the undisputed queen of this southland among forest trees, reigns supreme.

Here the sun shines in November as bright as ever, but his power is moderated by cool breezes, and the brilliant moonlit nights give a feeling of inexpressible enchantment. The air, even in midsummer, becomes delightfully cool and invigorating after sunset, and fragrant with the odours of fruits and flowers. In the autumn months the extreme transparency of the atmosphere gives not only all parts of the landscape an astonishing clearness of outline, but even the sky does not look so high, nor so far away, as in the north, and at night-time the stars appear larger, their luminosity is greater, and they seem to be nearer, sparkling with wonderful glory and brilliancy. The air in "fall" and winter is particularly clear, and human voices can be heard at a great distance. Dews are very heavy during the nights, and all plants are dripping with moisture when the sun rises. Such a sunrise is very clear and grand, though the sunset is still more sublime and impressive, because of its wonderful, glowing lines. The whole sky in the west appears to be in flame, and this glorious sight lasts until night falls.

My garden swarms with northern song-birds from October to April, and even later, but only now and then can snatches of their song be heard. The noisy blue-jay, however, is an exception, and its screaming notes are almost always noticeable. Butterflies, moths, wasps, and particularly bees, crowd among the flowers, of which the garden now shows a greater wealth than at any other time of the year. The huge flower-spikes of *Cocos Bluménavia*, *C. Yatay*, *C. Gaertneri*, *C. Bonneti*, which almost daily burst their heavy club-like spathes with a peculiar noise, are swarming with such a number of bees that their humming can be heard at quite a distance. Fruit of the genus *Citrus* is seen in abundance, the golden Orange, the Lemon and Lime, the massive *Pomelo* and *Shaddock*, the brilliant *Tangierine* and *Manderin*, and the liliputian *Kumquat* are all gleaming in the beautiful, dense, dark green foliage of the trees. The Florida Orange is highly prized, being juicy, heavy, sweet, and aromatic. Many of the large guava bushes are still covered with their strangely odoriferous, delicious fruits, and Pine Apples ripen in quantity. The fragrance of many of the flowers, particularly *Elæagnus reflexa* and *E. Simoni*, is very sweet; while the delicious perfume of the Angel's Trumpet (*Datura suaveolens*), of the night-blooming *Jasmine* (*Cestrum nocturnum* and *Cestrum Parqui*), and of *Crinum amabile*, *C. augustum*, *C. asiaticum*, and *C. giganteum*, is almost overpowering. The perfume of the *Roses*, especially of the most glorious and queenly of

them all, the far-famed *Marechal Niel*, of the woodland *Margaret*, *Lamarque*, *Gloire de Dijon*, *Cloth of Gold*, *Reine Marie Henriette*, *Kaiserin Augusta Victoria*, and many *Tea Roses*, pervades the atmosphere around my house with fragrance. At this time of the year many of the most desirable and showy ornamental trees and shrubs present a display of blossom and foliage unexcelled at any other season of the year.

TECOMAS, &c.

Among the beauties of my garden throughout the month of November, the *Yellow Elder* (*Tecoma stans*) is undisputed queen. Bushes of this plant around the dwelling house have attained to a height of from 15 feet to 18 feet and are about the same in diameter. How indescribably grand are the large panicles of their flowers that terminate the shoots! The branches are literally laden down with great trusses of brilliant yellow, delicately scented, large funnel-shaped blossoms. Humming-birds are constantly engaged in their work of capturing minute insects among them, and bumble-bees, butterflies, and a host of other insects swarm around and in the flowers. The colour harmonises beautifully with the light green of the abundant foliage. *Tecoma mollis* (*T. velutina*) and a few other varieties are also in bloom, but they are much less showy, being far surpassed by their beautiful and gigantic congener.

The *Cape Honeysuckle* (*Tecoma capensis*), which is scarcely ever out of bloom, is now at its best condition. The brilliant, orange-scarlet flower trusses, which are very effective, as spread over the very dark green foliage, have the appearance of flames. It is a half-twining shrub and a very common and pretty object in the gardens of Florida.

Near these two shrubs a *Lasiandra* (*Tibouchina semidecandra*) displays its unique brilliancy, its satiny purple-blue flowers, as large as a silver dollar, contrasting wonderfully with the bright yellow of *Tecoma stans* and the orange-scarlet of the *Cape Honeysuckle*. This Brazilian shrub attains to a height of 6 to 8 feet, and even more. The abundant, strangely-nerved foliage is of a dark green colour above and silvery-white beneath, and of a velvety texture, caused by the dense covering of soft short hairs. Many of the older leaves assume a bright yellow and orange-scarlet hue, which enhances the beauty of the plant considerably. It flowers from June until late in winter, and is able to withstand much more cold than the *Yellow Elder*.

A big clump of *Jacobinia coccinea* occupies a favoured spot close by the house. It is about 7 feet high and over 5 feet in diameter, and is surmounted by hundreds of bright scarlet blossoms on crimson stems, the whole inflorescences being arranged in large, open, pyramidal panicles. Each shoot is terminated by a very conspicuous flower spike. The foliage is large, dark green in colour, decidedly tropical in appearance, and is abundantly produced. This plant always forms a prominent object in the garden, and planted in large beds is much more effective and ornamental than the scarlet *Sage*, though not quite as resplendent. It blooms all through the summer months in profusion, but now is the season of its greatest glory and its fullest development. The first slight frost will cut it to the ground, but in spring it sprouts again vigorously from the rootstock. It is one of our choicest flowering plants, and it forms

one of the most characteristic features of our gardens.

Smaller and less conspicuous is the large-flowering Cigar plant (*Cuphea micropetala*). This species usually grows 3 feet in height, and is often 5 or 6 feet in diameter on account of the branches forming roots wherever they touch the ground. The rather large flowers are arranged in terminal spikes; they are of a yellow colour, flanked with brownish-crimson. The

The so-called Bluebird Flower (*Dædalacanthus nervosus*) is a fine companion plant to the Jacobinia. Its growth is dense and very ornamental; its flowers, which are produced in great abundance, are of a beautiful sky-blue colour.

LANTANAS.

Just now, too, the Lantanas are at their best. A fine clear, bright yellow variety of *Lantana Camara* grows wild around here along fences

particularly value a rather dwarf kind, which develops bright yellow-coloured flowers that change to a vivid orange and finally to a deep maroon tint, and another more upright and strong-growing kind, with flowers of a pure primrose-yellow, changing to pink and finally to a deep violet. There are many other varieties of Lantanas, but most of them are too vigorous in growth, and encroach upon their surroundings. I have seen plants with a spread of from

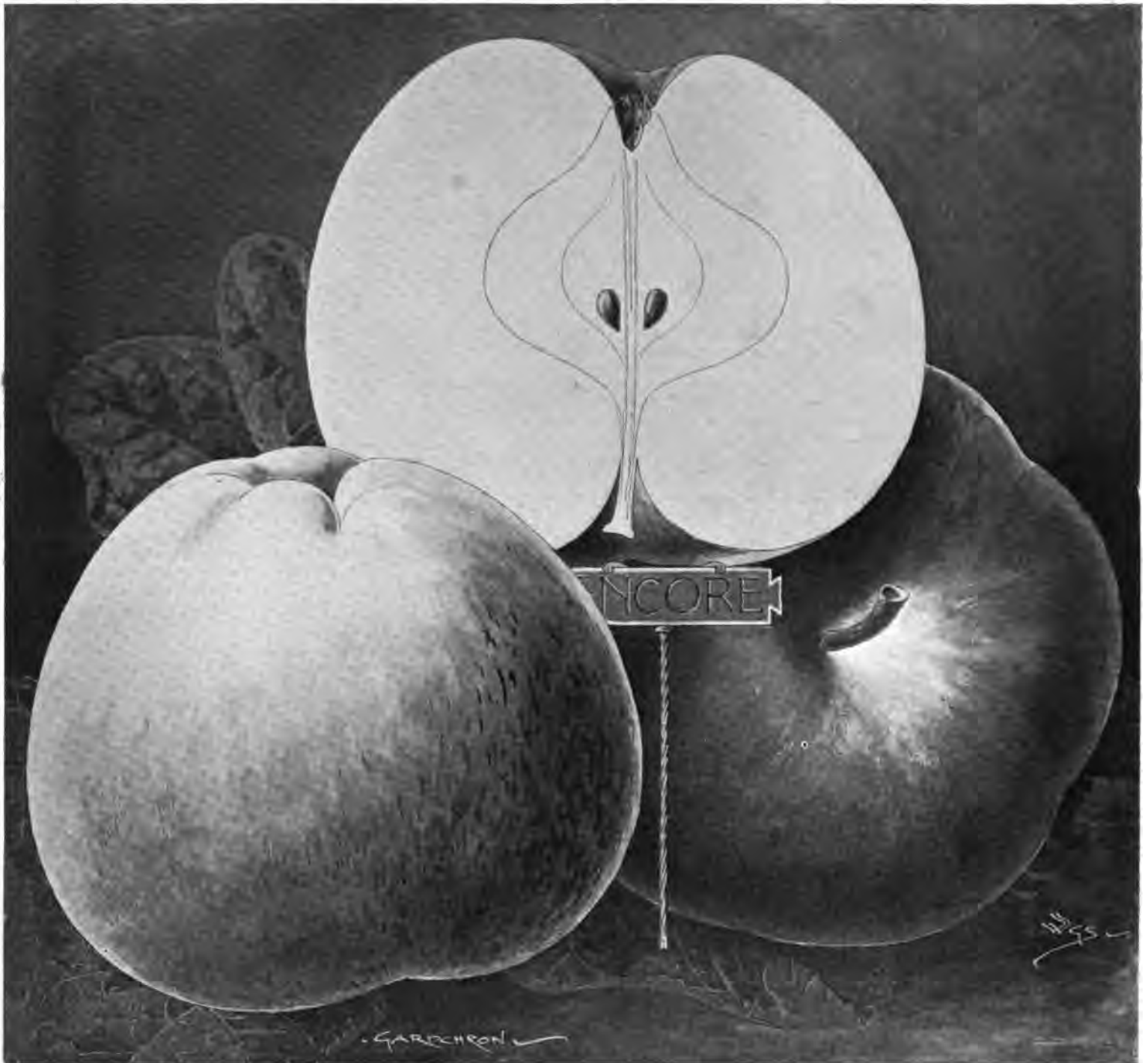


FIG. 1.—NEW SEEDLING APPLE "ENCORE": SKIN PALE YELLOW OR GREENISH, WITH RED STREAKS TOWARDS THE BASE OF THE FRUITS.

(For text see page 3.)

Madagascar Periwinkle (*Vinca rosea*), a pure-white flower with a red eye, is also now in full bloom. This plant finds the soil and the climate of this country so congenial to its requirements that it frequently escapes from the gardens and grows luxuriantly on the roadside. The same may be said of *Clerodendron fragrans* and the tall *C. Siphonanthus*, the first-named being in full bloom late in the "fall," while the second is conspicuous on account of its clusters of bluish-black fruits.

and on the edges of thickets. In full bloom it is a very conspicuous object, and a valuable acquisition for the garden. Another species, more delicate and straggling in growth and with small heads of slightly fragrant flowers of rosy-lilac colour, is frequently found along roadsides and in old neglected gardens and back yards. This is *Lantana Sellowiana*, a fine trailing plant when well grown. The range and the change of colour among these plants is quite surprising under this congenial sun. I

25 to 30 feet and 10 feet in height. They do not appear to smother other more delicate and shade-loving subjects; in fact, I have repeatedly found other plants, including *Hippeastrums*, *Hymenocallis*, *Ismenes*, and *Camellias* vigorously growing by their side, or even underneath them. The falling leaves of the Lantanas enrich the soil wonderfully, and this undoubtedly is the cause of the luxuriant growth of all plants growing near them.

(To be continued.)

NEW, OR NOTEWORTHY PLANTS.

CLEMATIS QUINQUEFOLIOLATA.*

ABOUT eighty species of Clematis have now been described from China. The above plant was sent to Kew for identification by Messrs. J. Veitch and Sons, and was raised from seed collected by Mr. E. H. Wilson in the mountains to the north of Kui. It is closely allied to *C. Meyeniana* Walp., but differs in having five leaflets instead of three, and less numerous flowers. The flowers are milky-white in colour, and are borne, five or six together, on axillary peduncles, which are slightly shorter than the leaves. This species has been confused with *C. recta*, L., by Finet et Gagnepain in *Flore de L'Asie Orientale*, who quote Wilson, No. 1,442, under that species. It is a totally different plant from the typical *C. recta*, having fewer flowers and leaflets, which are quite distinct in shape. It appears to be a robust, free-flowering plant, which will probably prove a useful addition to the already large collection of hardy Clematis. *J. Hutchinson, Kew.*

COLONIAL CORRESPONDENCE.

EMIGRATION TO AUSTRALASIA.

As one who has followed farming and horticultural pursuits all my life in Australian states, I feel constrained to offer some advice to readers of the *Gardeners' Chronicle* who contemplate coming out to these states, or of sending their sons, to take up farming, pastoral or horticultural pursuits. There is room and place for thousands of comers if they are energetic, persevering and steady, but throughout our different States (with the exception of Queensland, where I have not been), I have seen so many sad instances where capital and labour have been wasted through lack of knowledge, or through neglecting to obtain reliable advice when starting in each of our Colonies for different pursuits, be it agriculture, sheep farming, dairying, stock, or fruit-growing. Conditions here are so different to those of the Old Country, that newcomers have a great deal to learn. Not only is a knowledge of the best localities requisite, but some additional knowledge as to different classes of soil is required, as in the best possible districts for, say, dairying, there are farms that are almost worthless for such purpose—and these are usually the ones that are for sale.

It must be remembered that Australia is a vast continent, reaching from comparative proximity to the South Pole circle right up to the influence of the Equator in the northernmost part of Queensland, and there are variations of soil and condition from that of Tasmania (which approaches closely that of the South of England) in various grades up to a tropical climate.

Each portion is especially suitable for certain cultures, and the annual rainfalls in the several parts are measured from a very few inches to several feet.

The vastness of the land, from the corners of which one might cut out an England, Ireland, and Scotland and hardly miss them, must be borne in mind by intending settlers; also the varied conditions of climate, &c., existing therein. The average newcomer on reaching here lands at Adelaide, Melbourne, or Sydney. If he has capital he is anxious to purchase a farm, sheep-run, or orchard at once, and casts about for such places that are offered him through agents. After purchasing, much above local values, he probably finds, after spending all his capital, and years of his life in hard toil, that he has been saddled with a property utterly unsuited for the successful production of the crops he has taken it up for. The property is mortgaged, usually lost, and lacking sufficient means to start elsewhere he drifts away to make a living as an unskilled workman. All such failures would be avoided if the newcomer had obtained some proper advice before starting. All intending comers should be able to state definitely when seeking such advice (1) Their age, and if capable of hard work; (2) the amount of their capital; (3) whether they have had any practical training on land, and what pursuit they desire to follow be it sheep-grazing, cattle-breeding, agriculture or fruit-growing. *H. McEwen, manager, Tasmanian Nurseries, Launceston, Tasmania.*

FORESTRY.

"WOODS FOR EVERYBODY."

THE principal value of this article is in the recommendation to plant small odd corners of our fields with suitable forest trees. But evidently the fact has been lost sight of that although large areas of planting may be carried out at a five-pound note per acre, nearly double that amount is required to fence, pit and plant a single acre on the farm or small private holding. As large plantations are usually formed on exposed and comparatively worthless land, the plants used must necessarily be of small size, but by the dwelling-house or on the farm plot, where the soil is invariably of good quality and the situation sheltered, for obvious reasons much larger trees are, and should be, planted. The cost of trees is given quite correctly, but there is nothing opposite pitting or planting. According to the writer, 2,722 trees should be planted to the acre; therefore, instead of £5 the following amount will be much nearer the truth:—

Opening 2,722 pits at 2s. 6d. per	
100	£3 8 0
2,722 trees at 40s. per 1,000	5 8 0
Planting	2 0 0
	£10 16 0

It will be seen that nothing is put opposite fencing or otherwise protecting the young trees. It should be distinctly remembered that I do not say that planting cannot be carried out at a lower figure than £10 per acre, especially when considerable areas are to be dealt with, but with small plots around dwelling-houses, where immediate effect is often a point of first consideration, the five-pound note will by no means cover the outlay.

It is wrong to recommend the Scotch Fir for damp ground—dry, gravelly pan being its medium, and excellent results have often followed the "notching" of young trees up to 6 or 8 inches in height. The good effects of exposing soil to the weather are too well known to be easily refuted, while the exposure of the ground has everything to do with the size of trees that should be planted.

Some excellent advice is given as to the choice of trees and planting, and this with the

* "Woods for Everybody!" How several residents may have an acre of forest trees for a five-pound note, being an article which appeared in the *World's Work*.

commendable idea of utilising waste corners for the growth of trees, will make the article of considerable value to the amateur planter.

FORESTERS' POCKET DIARY.

THIS is a very handy little book for the use of foresters, agents, nurserymen, &c., published by William Rider and Son, and compiled by Mr. A. D. Webster. The first article is devoted to the afforesting of waste land. Mr. Webster computes that there are in the British Isles about nine millions of acres of land, the rental of which is worth, on the average, not more than three shillings an acre, but which could advantageously be afforested. Mr. Webster urges that the State should gradually become possessors of this land for forestry purposes at a purchase rate of, say, 40s. per acre. He has little faith in the efficiency of private enterprise. If one million acres were planted during 25 years at the rate of 40,000 acres a year, and at a cost of £290,000 a year, great permanent benefit would be ensured. The expenditure of £290,000 is not much in comparison with the £25,000,000 annually expended by this country on supplies brought from abroad. Mr. Webster calls attention to the planting of Larch on the peat bogs of Ireland, where it appears the canker caused by the *Peziza* is almost unknown. Various matters of interest to foresters are given in this little book. Amongst other things we find a notice of the great Dragon tree of Teneriffe, but this was destroyed by a gale some years since, and, as we believe, the only authentic illustration of the tree from a photograph was given in our columns (June 8, 1872, p. 765). The names of the fungi at pp. 31, 32 need revision; indeed, the names of plants generally are often peculiar. The address of the Royal Horticultural Society is no longer at 117, Victoria Street. Mr. Walter Wright is no longer the secretary of the National Potato Society.

As showing the necessity for uniformity and regular proportion in our weights and measures, we note that Mr. Webster enumerates sixteen different measurements of acres in various counties, whilst in lineal measure, as every school-boy knows, the numbers run in irregular sequence from 12, 3, 2, 5½, 4, 10, 40, 8, 3, 69½ to 360. In square measure and cubic measure the want of proportion is equally apparent, and yet we pride ourselves on being a practical people and talk about an ounce of practice being of more importance than a ton of theory. Where the common sense comes in we fail to see. In spite of the few misprints we have had occasion to notice, Mr. Webster's forestry diary is most useful. No one wanting to give a serviceable present to a forester or land agent could do better than select this little pocket-book.

APPLE "ENCORE."

THE fruits shown in the illustration at fig. 1 represent a new culinary Apple raised by Mr. C. Ross, gardener at Welford Park, Newbury, from a cross effected between the varieties Northern Greening and Warner's King. At the R.H.S. meeting, held on December 11, the Fruit and Vegetable Committee unanimously recommended an Award of Merit to the seedling, and from the appearance of the fruits then exhibited they would be likely to last in good condition until March, being thus an excellent late-keeping variety. A description of the fruit was printed in our issue for December 15, p. 414, and the present illustration, which has been prepared from a drawing by Mr. Worthington Smith, being of life-size, needs no further explanation. The value of this Apple will depend, as it does in the case of most other fruits, upon its habit of growth, free cropping qualities and suitability for cultivation in a particular locality. We do not know whether the tree flowers early or late in spring, but, in view of the annual losses caused by late frosts, this is a most important matter to cultivators.

* *CLEMATIS QUINQUEFOLIOLATA*, *Hutchinson sp. nov.* *Fruites scandens*; caulis lignosus, canaliculatus, pubescens, demum fere glaber. *Folia* pinnatim quinquefoliolata; rhachis circa 15 cm. longi; foliola petiolulata, lanceolata vel oblongo-lanceolata, usque ad 9 cm. longa et 3 cm. lata, basi rotundata vel subcordata, apice mucronulata, incrassata, supra, costa pubescente excepta, glabra, subtus glabra, venis primariis tribus supra leviter impressis, subtus prominulis; petiolulus circa 4 cm. longus. *Cyma* axillares, pauciflorae, quam folia paullo breviores; pedunculi 8-8 cm. longi; bracteolae interdum foliaceae; pedicelli 8-5 cm. longi. *Sepala* 4 vel 5, oblonga, intus alba, glabra, extus praecipue ad margines, cinereo-villosa; filamenta glabra, complanata, 7 mm. longa; antherae 2 mm. longae. *Achenia* immatura verica. West Hupeh, Wilson, 718, 1,442, 1,608, 2,810; Ichang, Henry, 4,185, 808 (?); Nanto and mountains to northward, Henry.

PLANT-NOVELTIES IN 1906. ORCHIDS.

TURNING to the Awards of the Committees of the Royal Horticultural Society, which gives the best record of sterling novelties of the year, we find that all branches of horticulture have been well supplied with new plants during the past year, the number of new Orchids having been exceptionally good. In this branch the hybridists still maintain the lead, although there are signs that the introduction of good and new species by means of importation, and of albinos and fine varieties of species, is still largely sought by collectors.

Among fine species shown during the past year, specially remarkable were the noble specimens of *Lissochilus Horsfallii*, imported by the Hon. WALTER ROTHSCHILD (gr. Mr. A. Dye), and for a group of which the Royal Horticultural Society's Silver-Gilt Flora Medal and First-Class Certificate were awarded on March 6.

Major G. L. HOLFORD, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), takes a leading place as the raiser and exhibitor of some of the best novelties of the year, his awards having amounted to about a score, half of which secured First-Class Certificates, and the rest Awards of Merit. The former included *Cypripedium Alcibiades magnificum*, *C. Actæus langleyense* (see fig. 10), *Cymbidium Lowio-grandiflorum*, *Cattleya Whitei splendidissima*, *C. Lord Rothschild*, *Westonbirt* variety, *C. Dusseldorffii*, *C. Iris Countess of Morley*, *C. Cleopatra* and *Sobralia Holfordii*; while the Award of Merit varieties were *Brasso-Cattleya Madame Jules Hye*, *Cattleya Ashtoni*, *Westonbirt* variety, *C. fulvescens delicata*, *C. Trianae*, *Westonbirt* variety, *Lælio-Cattleya Baroness Schröder delicata*, *L.-C. Sunset*, *L.-C. Berthe Fournier*, *Holford's* variety, *Cypripedium nitens*, *Ball's* variety, *Cymbidium Wiganianum*, *Westonbirt* variety, *Sophræ-Lælia Phroso* and *Sobralia Amesiae*, all good things and presented in the highest condition of good culture.

Sir TREVOR LAWRENCE, Bart., Burford (gr. Mr. W. H. White), while appreciating good hybrids, still retains his liking for pretty and curious species for which his long list of awards has mainly been secured. He is credited with *Catasetum splendens punctatissimum*, *Cynoches Egertonianum viride*, *Mormodes Buccinator theiochlorum*, *Epidendrum floribundum*, *E. confusum*, *E. odoratissimum*, *Dendrobium Wiganiae illustre*, *D. lasioglossum*, *Chysis Sedeni*, *Masdevallia igneo-Estradae*, *M. ignea*, *Burford* variety, *Thunia Veitchiana*, *Burford* variety, *T. Marshalliana alba*, *Maxillaria molitor*, *Houlletia odoratissima xanthina*, *Stelis muscifera*, *Cirrhopetalum Amesianum*, *Quekettia Jenmanii*, *Polystachya grandiflora* and *Lælio-Cattleya Myra*, *Burford* variety.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), who in *Cypripedium Thalia* Mrs. Francis Wellesley, produced one of the finest *Cypripediums* of 1905, this year repeats the honour with *C. Germaine Opoix*, "Westfield variety," which, like the other hybrid mentioned, in addition to securing a First-Class Certificate, also obtained a First Diploma. In *Brasso-Cattleya* "Mrs. Francis Wellesley," which obtained a First-Class Certificate on April 17, we have the largest and best *Brasso-Cattleya*, and other fine novelties shown by Mr. WELLESLEY were *Cypripedium "Bella"*, *Westfield* variety, *C. Boxallii nigricans*, *C. villosus*, "The Premier," *Cattleya intermedia* *White Queen*, *C. Mendelii* Mrs. Frederick Knollys, *Brasso-Lælia* Mrs. M. Gatrix, "Westfield variety," *Lælio-Cattleya Hopkinsii*, *L.-C. Mrs. de Vere Beauclerk*, and *L.-C. Helena*, *Westfield* variety.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), secured First-Class Certificates for *Bulbophyllum virecens*, one of the most beautiful new species of the year; *Cymbidium P'Ansoni*, *Cypripedium Muriel Hollington*, *Cattleya Fabia superba*, and

other awards for *Oncidium monachicum*, *Lælio-Cattleya Kathleen Grey* and *Hemipilia amethystina*.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), received First-Class Certificates for *Cypripedium callo-Rothschildianum*, a fine specimen of which he showed at the Holland House exhibition; for *Ærides Houlletianum*, *Fowler's* variety, one of the largest and best *Ærides*; and the graceful and pretty *Cymbidium erythrostylum*, one of the fortunate importations from Annam, made by Messrs. Sander & Son; also Awards of Merit for *Cypripedium* Miss Louisa Fowler, *superbum*, *Cattleya Mantinii*, *Fowler's* variety, *C. Atalanta*, *Fowler's* variety, *Lælio-Cattleya Woodfordiensis*, and *Odontoglossum amabile*, *Glebelands* variety.

JEREMIAH COLMAN, Esq., Gatton Park, Reigate (gr. Mr. W. P. Bound), from the magnificent group which he staged at the Royal Horticultural Society in the spring secured Awards of Merit for *Dendrobium Brodiei*, *D. Othello Colossus* and *D. Wiganianum*, *Gatton Park* variety, and at the Temple Show for *Masdevallia Harryana*, *Gatton Park* variety, and *Cattleya Mossiae Jeremiah Colman*; and at other times similar awards for *Spathoglottis Colmanii* ×, *Cymbidium Colmanæ* ×, *Lælio-Cattleya Phyrne*, *Gatton Park* variety, all raised at *Gatton Park*; and *Dendrobium Phalænopsis*, *Gatton Park* variety, a pretty white form with slate-blue tint and veining on the lip.

Baron Sir H. SCHRÖDER, The Dell, Egham (gr. Mr. H. Ballantine), from his fine collection secured First-Class Certificates for the large and handsome *Lælio-Cattleya callistoglossa*, *The Dell* variety, and the fine *Cattleya Mossiae Reineckiana* "The Baron"; also a Botanical Certificate for the pretty *Cynorchis compacta*.

J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. G. G. Whitelegge), received a First-Class Certificate for *Cymbidium erythrostylum*, and Awards of Merit for *Brasso-Cattleya Digbyano-Mendelii* "Fortuna," *Lycaste tricolor*, *Lælio-Cattleya G. G. Whitelegge*, a fine and richly-coloured flower; also *Cattleya Fabia Bradshawiae*.

H. S. GOODSON, Esq., Fairlawn, West Hill, Putney (gr. Mr. G. E. Day), from his important collection received First-Class Certificates for *Cattleya Fabia Goodsonii* and *C. Octave Doin* var. *Herbert Goodson*, two of the most gorgeous *Cattleyas* of the year, the latter also securing a First Diploma.

Other good novelties shown by amateurs included the fine *Cattleya* Mrs. J. W. Whiteley and *Odontoglossum crispum* *Harryanum*, both distinguished as *Rosslyn* variety, and for which H. T. PITT, Esq., (gr. Mr. Thurgood) received First-Class Certificates; *Lycaste Skinneri Fascinator* and *Cypripedium aureum* *Hyeannum* from F. MENTEITH OGILVIE, Esq. (gr. Mr. Balmforth); the unspotted *Odontoglossum Rossii immaculatum*, the grandly-coloured *O. Queen Alexandra* var. *Carmen*; and the fine *Miltonia Clowesii Rosefieldiensis* of DE B. CRAWSHAY, Esq. (gr. Mr. Stables); *Sobralia Lowii* of HENRY LITTLE, Esq. (gr. Mr. Howard); *Phaius Doris* of NORMAN C. COOKSON, Esq. (gr. Mr. H. J. Chapman); the fine yellow *Brasso-Cattleya* Mrs. J. Leemann *inversum*—the first cross with *Brassavola Digbyana* as a seed-bearer, from the raiser, R. G. THWAITES, Esq. (gr. Mr. Black); *Cypripedium* G. F. Moore, C. Bridgei, *C. Leeannum Corona*, and *Dendrobium Phalænopsis Phyllis Moore* of G. F. MOORE, Esq. (gr. Mr. Page); *Cattleya labiata* *Captain J. F. Laycock*; *Cypripedium Actæus superbum* of DREWETT O. DREWETT, Esq.; *C. Actæus*, *Bank House* variety, of S. BRIGGS BURY, Esq.; the very handsome and distinct *Cymbidium Lowianum*, *Fir Grange* variety, of W. A. BILNEY, Esq.; *Dendrobium Arthur Ashworth* and the singular *Trevoria Chloris* shown by ELIJAH ASHWORTH, Esq.; the stately *Cypripedium Harri-Leeannum*, *Park Lodge* variety, of E. ROBERTS, Esq.; the very singular and ornate

Luddemannia Pescatorei, and the dark-coloured *Maxillaria nigrescens* shown by Miss WILLMOTT; and *Cattleya Hardyana Rex* from the Marquis DE WAVRIN.

(To be continued.)

MARKET GARDENING.

LILY OF THE VALLEY FOR SMALL GROWERS.

AN impression is abroad amongst some growers that unless this plant is cultivated by the several hundred thousand or even millions of crowns, no satisfactory profit can be obtained, but this idea is erroneous and rather surprising considering how easily and how successfully they are grown. No expert knowledge is required, no specially constructed houses, and no special sources of supply are needed. Taking one year with another, there is probably no more profitable plant to cultivate, and certainly none that is disposed of more easily, whether to local shops, to a private buyer, or to place on our large markets for sale on commission. If a shop or market trade is to be catered for, the first essential is to make provision for a regular weekly supply without any serious breaks. If an arrangement is made with a reliable firm, the plants can be had in bloom every week in the year, now that the retarding process has been brought to such perfection. At least one of the Hamburg exporting firms put up retarded crowns in as small a quantity as a thousand per case, and these are delivered weekly, fortnightly, or as may be required. Owing to their promptness in handling retarded crowns and the care with which they are packed, hardly any are spoiled through thawing too rapidly in transit, except perhaps in the hottest part of summer or when the boat gets delayed in crossing from Hamburg, and in these cases the firm always make good any losses. There is one particular branch of Lily growing which, in the opinion of many market-salesmen, is capable of considerable expansion, and that is the pot-trade for room and decorative purposes. When well grown with good foliage, there is no better subject to make an attractive plant in 48's and 32's. This trade is not catered for in half sufficient quantities. The writer has frequently seen such plants realise half-a-crown a pot.

Growers with only a small amount of glass will be well advised to take up the culture of Lily of the Valley, and to cultivate both the retarded crowns, a batch of which should be started into growth regularly each week of the year, and the fresh crowns, which can be forced from Christmas until the end of March.

As to cultivation, this is a matter needing very careful attention, coupled with a general knowledge of the usual methods employed. The crowns are received from abroad during the months of November and December, and can be forced into growth in order to bloom from Christmas to the end of March. These crowns can either be packed in damp moss and stored in a cold place, or they can be trenched-in (without parting the bundles) in the open ground. Frost will not in any way injure the growth; in fact, some growers say it is necessary they should be subjected to frost before they can be forced to the best advantage. They can be potted or boxed in quantities as required. The boxes should be made about 5 inches deep, and the crowns given about 2 inches space each way in planting. Any good, clean and sweet garden soil is suitable as a potting medium, if made freely porous by the addition of sand; and, if necessary, this soil can be used many times over, provided it is allowed to stand in a heap and turned over occasionally to sweeten before it is used again. Each time a little fresh soil may be added as occasion may require. Place the boxed crowns under glass in a very dark place: under a

bench is the usual situation, with a hempen screen to further keep out the light. The atmospheric temperature for the first two or three days should be of about 70°, after which it may be kept at 90° continuously. As soon as the flower spikes and some foliage show themselves, the plants can be placed on the top bench, and the bench or space below be filled up with another batch of crowns, but at no time should they be exposed to much light. The house should be heavily shaded with hemp-sacking on the outside. Whilst they are growing on the top bench they should still be grown in from 80° to 90° of heat, and when the flower spike is well expanded a lower temperature of about 60°, or even less, will be suitable. If they are not hardened off in this manner they will not stand cutting so well and the spikes will not last so long in water, nor will they stand up so stiff and straight.

The cultivation of retarded crowns is on many points different to that adopted for the fresh ones. The soil, type of boxes, and the system of culture in the dark are the same, but in the matter of temperatures a great difference exists. Retarded crowns should not be grown in more than 60° of atmospheric heat, and they should never be subjected to bottom heat. For fresh crowns placed under benches bottom heat is most suitable, but with retarded plants heating by means of pipes running down the paths and not directly under the benches is the most suitable plan. The fault with this system is that it subjects the crowns to too much heat. Growers are apt to lose sight of the fact that retarded crowns do not require forcing, but rather checking in growth after they are taken from the ice. The buds are ready and impatient to grow in a normal temperature without artificial heat. If, when the crowns are received from the refrigerator, they are not thawed, this should be done gradually, and in summer an outside shed is the most suitable place, but in winter a position such as under a greenhouse bench or elsewhere in which the temperature is about 45°. After the crowns, both fresh and retarded, are boxed and growing, they require during the whole period of forcing an abundance of water at the roots; the atmosphere of the house must be kept constantly damp, and the floors and pathways wet.

As to the crowns themselves, they may be divided into at least five distinct types—fresh crowns for very early forcing, fresh crowns for very late forcing, retarded crowns required for use from April to August, retarded crowns required for use from September to December, crowns required for pot-work, and such crowns as will produce a quantity of healthy dark green leaves. In the case of an inexperienced beginner it would be better to leave the selection of samples to a trustworthy firm, first informing them for what purpose the roots are required, and the grower will speedily gain sufficient experience to know which samples suit his purpose the best. As a general rule it is better to avoid samples retarded in England. These are usually frozen in public cold stores with provisions and other goods, and this kind of cold air is unsuited to retarding Lilies of the Valley, and according to the writer's experience (which covers handling about two and a half million each of both fresh crowns and retarded) nine out of ten batches grown from English retarded crowns are a dismal failure. In Hamburg they are retarded in specially constructed houses, and one or two firms have made a special study of the work, have their own cold stores, and have brought the business almost to perfection. E. C.

FLORISTS' FLOWERS.

THE RECENT MARKET-CHRYSANTHEMUM SHOW.

THIS exhibition, which was fully reported in the *Gardeners' Chronicle* for Dec. 15, has now become an annual event. As an educational lesson in the selection of varieties

for mid-December, the show was most valuable, and for the benefit of those who had not the opportunity of inspecting them, I will briefly refer to the more prominent varieties. As a rule the Japanese varieties are most in request for decoration, owing to their size, which is large enough without undue coarseness, and, as a rule, for their most brilliant colours. The incurved section was much more interesting than many persons would imagine. The single-flowered varieties were disappointing, the colours appeared dingy, and the blossoms did not show themselves to the best advantage. The peduncles of the majority in this section were weak, and not sufficiently stiff to support the blooms adequately. In the incurved section the variety Frank Hammond, with its rosy bronze, medium-sized, neatly-built flowers was much in evidence, clearly proving its value for decoration in a mass in vases when not too tightly arranged. Mrs. Judson, with its pure-white, shapely blooms, was conspicuous on several stands. Buttercup, of a soft yellow shade of colour, was a variety much appreciated. The late-flowering Snowdrift, with its neatly incurving florets, was seen to advantage in a mass. Of the incurving Japanese type Madame Paolo Radaelli and its sport were conspicuous, the former heavily flushed with pink, and the latter having much more rosy bronze than is usual earlier in the season. The deep pink of Mdle. Lawrence Zede could not be other than appreciated, especially when arranged in conjunction with other suitable shades of colour. Mrs. T. W. Pockett, with its none too severely incurving florets, was raised in Australia. Guy Hamilton was quite one of the best white-flowered varieties. I strongly commend this to all gardeners who cater for a Christmas supply of white flowers. Needless to say, the Princess Victoria family were much in evidence, the creamy white shade of the type, and the golden and pink sports were all finely developed. Matthew Hodgson, with its crimson-brown florets, is certainly a good market variety, although it is no longer a favourite for exhibition purposes.

Amongst yellow kinds Nagoya was the most brilliant, yet the ordinary gardener scarcely ever grows this fine sort, but he would do well to make its acquaintance, for it is of a glorious hue. In the pink-coloured section Mdle. Louise Charvet was attractive; the shapely blossoms are borne on stiff, erect stems, and it is most useful for vase decoration. Framfield Pink has a lovely rose suffusion, enhancing the natural pink of the variety. Amongst richly-coloured sorts, Violet Lady Beaumont was noted; its deep, rich crimson is a most pleasing colour when associated with white and yellow. Cullingfordii had many admirers, and deservedly so. Mr. J. Thompson and its yellow sport had but to be seen to be admired. E. Molyneux.

HOW TO PACK CHRYSANTHEMUMS FOR TRANSIT.

A CORRESPONDENT in St. Kitt's writes to the *Agricultural News* (Barbadoes, West Indies) as follows: "Young plants can be obtained from growers in England or America about August. The growers usually pack them in the same way as for transport in temperate regions. This gives very bad results, all the leaves and the young stems arriving in a rotten and mouldy condition. The growers should be instructed to pack as follows: Choose young plants which have formed woody stems; cut off nearly all the leaves and prune all the soft stems; wrap a very little wet sphagnum round the roots, and envelop the whole in about five loose folds of paper, some of which may be glazed, but not waxed. Do not use any box, and a paraffined box is the worst of all. If a box must be used, trust to paper wrappings for keeping moist, and cut the box full of holes."

The Week's Work.

[We do but echo the feelings of our readers when, on this occasion, we take the opportunity to tender our most appreciative thanks to those who have throughout the past year contributed to *The Week's Work*. The record of the experience of such men is of the greatest value to their fellow workers. If each year we make certain changes it is simply with the view of giving others the opportunity of expressing their opinions, and thus ensuring variety and freshness. In this issue also we introduce a new section devoted to the management of public parks and gardens. Happily for the health, bodily and mental, of the dwellers in cities, the municipal authorities of late years have devoted much attention to the formation and maintenance of recreation-grounds, using that word in its widest significance. Some years ago we made enquiries of medical officers of health in various cities as to the relation between the area of open spaces and the health of the population. The results were never published in full, but they were conclusive as to the great value of these breathing spots to the community, especially to the children. But the workers have also to be considered, and the requirements of the aged have to be provided for, so that while an open space is the main essential, its decoration as an agent in securing mental health and in developing the pleasures and amenities of life is hardly less important. The duties and requirements of the managers of these establishments are necessarily somewhat different from those of the gardener in general, hence we are pleased to have been able to avail ourselves of the services of Mr. W. Pettigrew, of the Cardiff parks, in initiating a series of articles, to which we trust our many friends among park superintendents will contribute from time to time. The selection and management of trees, the formation and maintenance of lawns, cricket grounds, golf courses, the treatment of lakes the hatching and rearing of fish, the filling of flower-beds, the management of municipal allotments—all these will, we hope, come under consideration, at intervals, and form a valuable feature in the pages of the *GARDENERS' CHRONICLE*.]

PUBLIC PARKS AND GARDENS.

By Mr. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Introduction.—At the present time, I believe, no medium exists whereby parks-superintendents can be kept in touch with each other's doings, and information on park-management can only, as a rule, be obtained by writing direct to the various public departments throughout this country. In this connection, it is interesting to note that the parks-superintendents in

the United States issue and circulate among themselves at given periods of the year a type-written bulletin, each superintendent adding a page or so of matter before passing it on to his neighbour. To my way of thinking, this at the best is but a cumbersome and unsatisfactory method



of keeping up professional intercourse, and one which would hardly be found to work smoothly in the old country.

The decision of the Editor of the *Gardeners' Chronicle* to set aside a small space at intervals for the consideration of public park matters should be welcomed as the first step in attempting to meet our requirements. It is worthy of remark that one rarely finds parks-superintendents writing much to the gardening Press. While this may be largely accounted for by the fact that their time is so fully occupied, it may also be that the subjects most generally considered in the horticultural papers are not those upon which they may feel justified in giving an opinion. With a corner of the *Gardeners' Chronicle* placed at the disposal of parks-superintendents, they may now be more inclined to write and give expression to opinions upon their own special work.

Although the chief official of a public parks department must be primarily and essentially a practical horticulturist, many of his duties, and the matters which call for his daily attention and thought, are more or less removed from the sphere of gardening, and come but little within the purview of the duties of the private gardener. As the conception of the uses to which public parks may be put becomes more extended and rational, these—from the purely gardening aspect—extraneous duties become a decidedly important part of the park superintendents' calling. Such matters being those which are never touched upon in the gardening Press, they will, all being well, be among the principal topics discussed in this column.

Preparation of estimates.—One of the important duties of the head of a parks department is the preparation of estimates, showing the probable cost of carrying on the work of his department for the period of six or twelve months, as the case may be. As rates are levied on the strength of these estimates, it is but natural that they are very carefully considered by the governing body of the town, and it is therefore necessary that they should be prepared thoroughly and well, and in as detailed a manner as possible. The municipal financial year, commencing as it does on April 1, makes it essential for all estimates to be sanctioned by the various committees concerned, and passed on to the finance department several weeks before that date; hence the commencement of the New Year generally finds park-superintendents busy preparing such estimates.

Where estimates are drawn up every six months, they are not nearly so difficult to prepare as where they are made for a whole year at a time. In the latter case—which is now the more common system—much foresight and care is required in their compilation, otherwise it will be found that before the year is out many additional expenses, which ought to have been foreseen and provided for, have been incurred, and the estimate over-spent. Under these circumstances the finance and controllers' department has a perfect right to ask the reason why.

It need hardly be pointed out that unless some systematic preparation is made for the drawing up of park (as any other) estimates they cannot be entirely satisfactory, as it is almost a matter of impossibility to make anything like ample provision for a year's requirements by simply considering the matter a day or so before preparing them. As a help in this direction, it is a very good plan to have a book in which notes may be made all the year round about matters requiring attention in the near future, especially such matters as may require extra outlay, as, for instance, the re-metalling of roads, the repairing of walls, and the renewal of fencing. It is the making provision for such cases as these, and not the usual maintenance charges, which are so apt to be overlooked in preparing an estimate. Then, again, it often happens that the committee in charge of the parks gives instructions at one season of the year to carry out certain work at another period of the year, for which money has ultimately to be provided. A memorandum of all such instructions, with the probable cost of carrying them out, should be kept in the same book, which would thus be an invaluable aid in preparing comprehensive and reliable estimates.

Estimates should be more or less binding.—Having prepared his estimates, the next important duty for a park-superintendent to do is to keep within them. Here, again, the use of a special book will be found to be of the greatest possible assistance. In this book—known as an Estimate Book—every item of the estimate, with the amount of money allowed for it, is entered up, and as bills are passed month by month the sums charged against each item are shown in such a way that it is easy within a few minutes to see how much has been spent on any part of the estimate. With the exercise of forethought in their preparation and a firm hand in afterwards dealing with them, it ought to be fairly easy to keep within one's estimates, but unfortunately it often happens that some new development never dreamt of takes place, and with all one's care and manipulation the year's estimate gets sadly upset. Notwithstanding the fact that one often hears it asserted that the "public's pocket is deep," it

behoves every park-superintendent to have as his motto, "Efficiency with economy," and the more he is able to carry this into effect, the better for himself and the public.

THE HARDY FRUIT GARDEN.

By Mr. J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Devon.

Retrospection.—A new year usually brings new readers who have not previously consulted the remarks in these pages on seasonable work; while, therefore, endeavouring to avoid repeating advice penned by my predecessor, a little latitude may perhaps be extended to me for the reason I have stated.

Planting trees.—Trees that are planted before the shortest day in the year have the best

chance of establishing themselves before they are subjected to the parching winds of early spring and the drought of summer. At the same time, if the work is carefully carried out when the soil is in a friable condition, planting may be continued during the next six or



eight weeks with every chance of success, especially if attention be first given to those varieties of fruit that come into flower or leaf early in spring. The mistake is frequently made of cramming the roots of a tree into too small a hole instead of allowing ample space that they can be spread out evenly. In many instances trees are planted too deeply, 3 to 4 inches deep of soil over the uppermost roots being quite sufficient. The affording of stakes to newly planted trees is often delayed until the winds show that the tree has been rocked to and fro, and therefore the roots loosened in the soil. Such supports as are necessary should be afforded at the time of planting; the affixing of a permanent label also is sometimes neglected until the nurseryman's temporary writing is effaced, to the disappointment of the planter.

Pruning.—The exceptionally mild weather of the past two months has been favourable for this work, but in many gardens such work extends well into spring. That remaining still to be done should be pushed forward at every opportunity, cutting back beyond the summer pruning, and within two buds of their origin, the shoots on Apple, Pear, and Plum trees, whether standing in the open or trained against walls. More latitude may be allowed the extension shoots, these being cut back to one-third their length. Exceptions may be made in respect to horizontally trained trees, leaving such shoots as they are if not more than 12 inches of growth has been made during the past year. It is well to survey an established tree and see whether an improvement cannot be effected by reducing the number of spur growths; these, after some years, become far too numerous, obstructing sunlight and air. Defer, for the present, the pruning of recently-transplanting trees.

Grafting.—Where grafting is contemplated, the required varieties should be selected, labelled, and the scions laid or heeled-in under the shelter of a north wall. The trees to be grafted should be clean and healthy specimens, and should be headed back to within a few inches of the point where it is intended to insert the scions.

Grease bands.—Those who apply grease bands to catch the winter moth should examine these, and if found dry smear them afresh, after rubbing off the trapped moths. The birds, too, will soon be busy among the fruit buds, and prevention being better than cure, let those trees and bushes which have already been pruned, be netted, or syringed with Bentley's Bud-protecting composition two or three times before the buds begin to unfold.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Local conditions.—As the application of all advice offered in a calendar of out-door gardening operations depends largely on the local conditions of climate, it will be useful to

state briefly the approximate conditions in these gardens. The north and north-east portion of Cornwall does not enjoy the advantages of the south and western parts. As a matter of fact, the former district is far from being the "Cornish Riviera" so largely ad-



vertised by the railway company whose system carries so many tourists and health-seekers to the west of the county. Except that the average rainfall (43 to 47 inches) is greater, and gales are more frequent, the conditions are very similar to those around London. Frequently the mean temperature is lower than in London. At the moment of writing snow is on the ground, and we have registered 12° and 14° Fahr. of frost. This difference in climate from the more favoured half of the county, where a surprising variety of Palms, shrubs, and plants (which in most parts have to be grown under glass) are quite at home, is due partly to altitude—Pencarrow is over 400 feet above sea level—and chiefly to the absence of the warming influence of the Gulf Stream, which, after approaching the Scilly Isles, divides at the Lizard and Land's End. The portion which continues up the Irish Sea passes across the Bristol Channel, giving to the north coast of Cornwall only a part of its benefit, and consequently this neighbourhood not only is unable to sustain sub-tropical vegetation, but its seasons are late. The influence of the nature of the soil is everywhere of such a local character that it does not call for any special mention here.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Allica, Clackmannanshire.

Cleansing and pruning of vines.—Give daily attention to any Grapes which may be still hanging on the vines, removing all berries showing signs of decay. Do not allow the heat

to fluctuate, but keep the atmosphere somewhat dry. Complete as soon as possible the pruning of all vines from which the fruit has been removed. I do not recommend close pruning especially if the vines are weak. Leave two buds at the base of each shoot, one of which



can be rubbed off when the vines start into growth. All vine rods, after they have been pruned, require to be thoroughly washed with hot water and Gishurst compound whether they have been infested with insect pests or not, but they should not be peeled unless they have been attacked with red spider, bug, &c. Wash and cleanse thoroughly all the woodwork and glass, and paint the woodwork if this is necessary.

Remove the loose soil from the surface of the borders right down to the roots, making bare some of the latter. When this has been done, apply a top-dressing with fresh loamy soil, in which has been mixed some approved vine manure, and mulch the surface with moss-litter or manure from an old Mushroom-bed, placing the material 1 or 2 inches thick. When this has been done, tie the rods into position, and the house will then be ready for starting when desired.

Vine "eyes."—The present is a suitable time to put in vine "eyes" for raising young rods for planting in borders, &c., or for in-arching on old vines.

Early vines that were started last month will now be on the move, and require careful attention. The atmospheric temperature at night should be 65°, and during the day 70°. Prevent any excess of moisture, and do not hurry the vines during these short, dull days. When the buds on the spurs are breaking into growth, rub out all but the best one. If the early vines are growing in pots, be careful to keep the roots supplied with sufficient water. Disbud the young canes carefully.

Pines.—If ripe fruits will be required early in the season, it will be necessary now to select a sufficient number of "Queens," choosing the best, well-set plants, which, having finished their growth, have also been rested. The plants will require an atmospheric temperature at night of 65°, and by day 75°. Plunge the pots in a Pine-pit in a bed of tan-bark or any suitable plunging material, and see that the bottom heat is at about 85°. The soil in the pots will be dry, therefore give the roots a good soaking of water at a temperature of 75°. Gradually increase the amount of heat and moisture as the days lengthen. Attend to young suckers intended for succession, but keep them much cooler. The over-watering of Pines at this season of the year is more than usually injurious.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Temperatures.—In the stove the atmospheric temperature at night should now range between 60° and 65° Fahrenheit, the greater heat mentioned being the maximum for a mild night,

and the lesser heat the minimum for a cold or windy night. A rise of 10° should be allowed in the morning before any ventilators are opened, endeavouring to have the conditions favourable for admitting a little air during the latter part of the morning if the weather is good, but it will be necessary to close

the houses again early, thus making the most of any sunshine there may be. Watering should be done as early in the day as possible, care being taken not to have too much moisture about late in the day.

In the warm flowering-house, containing such plants as Gesneras, Euphorbias, winter-flowering Begonias, &c., the atmosphere should be kept rather on the dry side, and at a temperature ranging from 55° to 60° at night, rising 5° higher in the daytime; admitting a little air whenever practicable. The ordinary flowering-house or conservatory may be kept at about 50° at night, and 55° in the day, this degree of heat being suitable for Cyclamen, Primulas, and forced bulbs and shrubs that are usually to be seen in such structures at this season, also such plants as Grevillea robusta, Cordyline indivisa, Acacias, Cytisus, and others, which may be used with advantage in conjunction with the flowering-plants mentioned above.

Winter-flowering Carnations.—Where a house is devoted to this most useful class of winter-flowering plants, it is at the pre-

sent time, one of the most interesting houses, as a succession of blooms is now rewarding the careful cultivator. The blooms are general favourites, and can scarcely be used in the wrong place, whether for decorating the dining-table or in glasses about the sitting-rooms, their long, elegant stems making them particularly valuable for such work. Some of the best varieties at present are Enchantress, and the various sports therefrom, Lady Bountiful (pure white), Harlowarden (deep crimson), White Lawson and White Perfection, both beautiful varieties, Crusader (scarlet), Flamingo, Robert Craig, Nelson Fisher and Dorothy Witney, while the older Mrs. S. J. Brooks, Mrs. T. W. Lawson, Alpine Glow, Floriania, Fair Maid, and Mrs. Leopold Rothschild, make a very good collection. The atmospheric temperature of this house should range from 45° to 50°, and a little air should be admitted whenever the temperature out of doors is above freezing point, keeping at the same time a nice warmth in the water pipes.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Preparation of ground.—In consequence of the very open weather which continued through November and the greater part of December, the work of trenching, digging, &c., should be by

this date in a well-advanced condition, and certain plots and borders have probably been marked out for particular crops. Trenching should not be proceeded with in very hard weather, as it would be found that large pieces of frozen soil, if buried in the ground,

are a long time in thawing, and until a considerable time after this has taken place the ground remains in a cold, wet condition.

Rotation of crops.—The arrangement of the crops is important. It is good practice to alternate tap-rooted crops with surface-rooted vegetables. Plots now destined to carry early Peas, Beet, Turnips, Carrots, and early Salads could ultimately be followed by Cabbages, Broccoli, or similar crops.

Forcing Vegetables.—Of Potatoes, the Jersey Fluke, which is imported into this country in May and early June, has yielded splendid results here in November and December. Well selected "sets" that were obtained in the manner already stated were at once given full exposure to the sun to hasten their ripening, previous to being started in boxes which were partly filled with leaf-soil and placed in a cold frame facing to the south. They were kept fairly moist at the roots, and air was admitted moderately to the frame. Full exposure to the sun ensured good, strong growth, and the tubers had made an abundance of roots by the middle of August. The first batch was planted at about that date in light, leafy-soil in a cold frame, but with sufficient heat at command for use when required to repel frost. Tubers of good quality and weighing about 2 ounces to 3 ounces were thus ready in considerable quantities for consumption by the end of November. Sharp's Victor forms a good succession to this variety, but, although superior in quality, does not appear quite so prolific.

Peas that were sown in frames in November for yielding a crop by the end of May require to be ventilated liberally on all possible occasions. Stir the soil between the rows frequently to prevent the least suspicion of sourness on the surface. A successional sowing of seeds of such varieties as Sutton's Little Marvel, May Queen, and Early Giant should now be made.

Rhubarb.—Continue to lift roots for forcing in succession. If they are lifted and allowed to

remain on the surface of the ground, fully exposed to frost, thus receiving as decided a check as possible before introducing them to heat, they will usually be found to respond more readily to the influence of the forcing-house.

Seakale may be forced with excellent results on the established beds, if the leaves are removed in autumn as soon as they are decayed, giving the crowns every facility to become thoroughly ripened before covering them with the pots. A good depth of well-mixed litter and leaves must be placed over and about the pots to secure perfect darkness, and a moderate heat of from 45° to 48°. As a number only of the plants will be required for forcing at one time, the remainder should be protected with a covering of leaves to prevent the ground becoming frozen, for if this were to happen greater heat and a longer period would afterwards be required to induce the plants to grow.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Temperatures for New Year.—In Orchid culture, the advent of a New Year makes but little difference, and the present period may be taken as the centre of the resting, or slow-growing season.

But there will probably be some gentlemen who will now for the first time enrol themselves among Orchid amateurs, more beginners, added to the ranks of us Orchid growers, and as they become interested in the work which is done in the "Orchid Houses," many will, in all probability, become

new readers of the *Gardeners' Chronicle*. For the benefit of such, it may be well to state that I group the various structures in which Orchids are grown into four divisions, viz.: (1) East Indian house; (2) Cattleya house; (3) intermediate house; and (4) cool or Odontoglossum house. For maintaining good health in the plants at this season of the year, the atmospheric temperature at night in the aforesaid divisions should be kept at about (1) 60° to 65°; (2) 55° to 60°; (3) about 55°; (4) 45° to 50°. A few degrees less of heat than the lower figures indicated during exceptionally severe nights, when the houses, owing to the unusual amount of fire-heat, are comparatively dry, is much better for the health of the plants than high, depressing temperatures.

The higher degrees of heat should be maintained whenever the external temperature ranges between 30° and 40°. By day the higher figures mentioned should be adhered to, and whenever the temperatures can be raised several degrees by sun-heat, the plants will be greatly benefited thereby, providing the atmospheric conditions inside are carefully regulated as regards moisture and the necessary amount of fresh air is admitted through the ventilators. In the four divisions mentioned above almost every tropical Orchid can be grown more or less well, but where large numbers of certain species have to be grown well, it is advisable to give them a structure to themselves. Thus in many places there will be a Phalaenopsis house, a Dendrobium house, a Mexican house, a Cypripedium house, a Masdevallia house, and houses set apart entirely for the raising and growing of Orchid seedlings. If any reader who may possess only the first-named divisions should find me at any time recommending some particular plant or any section of Orchids to be grown in any of the more specialised houses, he will, without doubt, by careful study, find suitable positions in some part of his houses almost identical with those advised.



EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

APPOINTMENTS FOR JANUARY.

TUESDAY, JANUARY 8—

Roy. Hort. Soc. Coms. meet.
Ann. meet. Scottish Hort. Assoc., Edinburgh.
Brit. Gard. Assoc. Ex. Council meet.

THURSDAY, JANUARY 10—

Manchester and N. of Eng. Orchid Soc. meet.

MONDAY, JANUARY 14—

R.H.S. Exam. of Public Parks and Gdn. Employees.

THURSDAY, JANUARY 17—Linnean Soc. meet.

TUESDAY, JANUARY 22—Roy. Hort. Soc. Coms. meet.

THURSDAY, JANUARY 24—

Gardeners' Roy. Benevolent Institution Ann. Meet. and Election of Pensioners at Simpson's Restaurant, Strand, London, 2.45 p.m. Friendly Dinner at 6 p.m. Manchester and N. of Eng. Orchid Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—87°9'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 2 (6 P.M.): Max. 44°; Min. 39°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 3 (10 A.M.): Bar., 29°3'; Temp., 42°; Weather—Bright.

PROVINCES.—Wednesday, January 2 (6 P.M.): Max. 44° Ireland S.W.; Min. 36° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—

Herbaceous and Border Plants, Azaleas, Rhododendrons, Roses, Hardy Bulbs, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

WEDNESDAY—

Hardy Border Plants, Perennials, Liliums and other Bulbs, at 12; 5,000 Roses, at 1.30 and 4; Palms, Plants, Azaleas, &c., also Fruit Trees, at 4; 3,064 cases Japanese Liliums, Lily of the Valley, Hardy Bulbs, &c., at 1, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Dutch Bulbs and Flowering Plants, at Stevens's Auction Rooms, 38, King Street, Covent Garden.

FRIDAY—

Various Importations of Orchids, also Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The American Gooseberry-mildew.

We learn that Prof. Salmon, who has already favoured us with sundry communications on the subject, is to lecture at the R.H.S. on Tuesday next on this fungus. Mr. Salmon is an enthusiast whose ability and pertinacity command admiration as well as attention, and his lecture detailing his experience will be listened to with interest commensurate with the importance of the subject. In the evening of the same day Mr. Salmon is to speak on the same subject at the meeting of the Horticultural Club. If this were all, we might confine ourselves to the mere announcement of what is to take place, but from a circular of the Market Gardeners', Nurserymen's, and Farmers' Association we learn that that association "has arranged with the R.H.S. for a joint meeting to discuss the subject," and not only that, but the discussion is expressly stated in the circular to be conducted "with a view to such further action as it may be decided the interests of the trade call for." Free discussion can do no harm and may be productive of much good, but the implied undertaking to take further action

would seem to be an attempt to commit the R.H.S. to a certain course which may, or may not, be desirable. For our own part, we trust the society, as a society, will not at present take steps to sanction anything more than discussion, for the reason that whilst we all admire the enthusiasm and pertinacity of one expert, we must also see to it that that enthusiasm is tempered with discretion. There is, so far as we know, no reason to doubt the accuracy of Mr. Salmon's facts, but it is by no means so certain that this observer is not attaching an exaggerated importance to them. In principle Mr. Salmon is no doubt correct, but the state of affairs as revealed in the laboratory and by inspection of specimens in various parts of the country does not justify the application of abstract principles to the vastly different and, it may be, conflicting conditions of the fruit-garden. So many factors have to be taken into consideration that it is quite possible that the drastic measures which would be dictated—and, from his point of view, rightly so—by the scientific expert might in the end, if carried out, be productive of more harm than good to the fruit-grower. The most drastic measures enacted in the case of the Phylloxera failed to prevent the spread of the pest, whilst they inflicted a vast amount of quite unnecessary inconvenience and loss to those who were not connected with the vine-growing industry. We cannot suppose that any system of inspection of imported plants, or any destruction of gooseberry bushes known to be infested, would entirely prevent the progress of the disease, though, undoubtedly, they might check it and diminish the mischief caused by it. If expert opinion were unanimous, there would be no doubt as to the propriety of the most stringent measures being taken to cope with the disease whilst it is yet in the initial stage, or, better still, to prevent its re-introduction. But expert opinion is clearly not unanimous, and measures of prevention are already too late, unless locally. Mr. Massee, the expert appointed by the Board of Agriculture to examine into the matter, evidently does not take so serious a view of the case as Mr. Salmon does, and, in this opinion, he is, as we know, supported by other men of science. When the matter was brought recently before the Scientific Committee at which were present various experts and a contingent of naturalists and practical growers, a resolution proposed with a view of some action being taken was not even seconded, doubtless because the members of the committee felt that the subject had not yet got beyond the discussion stage. In these circumstances, it might be well if the R.H.S., before definitely committing itself to any particular line of action either by itself or in association with any other body, should appoint a small sub-committee selected from the Scientific and Fruit Committees to consider and report to the Council. The two committees we have named comprise several members, among them Mr. Salmon himself, Mr. Massee, Mr. Güssow, Mr. Chittenden, and others peculiarly well fitted either to furnish evidence, or to pronounce an opinion on that which we have already. A vote taken at an ordinary meeting comprised largely of those unfamiliar with the subject, would have little real value, though outsiders might naturally attach importance to it.

Hypodermic Injections in Plants.

M. J. M. Simon has been making experiments on his property in Morbihan by injecting nutritive fluids into the stems of trees and other plants. A receptacle containing the fluid to be injected is placed at some height, 2 metres in one case, above the ground level. From this a pipe is carried down nearly to a level of the soil just above the roots, a little funnel-shaped curved tube is attached to the base of the pipe, and made to penetrate to the young wood of the tree. In this way a certain amount of pressure is established and this is of course aided by the sap rising from the root. Decaying Apple trees were thus treated with encouraging results, and in the *Journal de la Société Nationale d'Horticulture de France* M. Simon gives the details of further experiments of a similar kind on Peaches, Vines, and Potatoes. In the case of the Peach purin was injected, mixed with water (the proportions are not given). The injected tree was side by side with one in a similar state of decrepitude but not treated. The results were soon apparent, the injected tree grew vigorously. The experiments were conducted over two years, sometimes with purin, sometimes with nitrate of potash, sometimes with a chemical solution of a composition closely resembling that of the sap. Not only was the vigour restored, but Peach trees that had previously been attacked with blister dropped their leaves and produced new ones which were unaffected with the fungus. In the case of Vines an injection of copper sulphate did harm owing, probably, to it being used in a not sufficiently dilute condition, but ultimately, by the aid of copious waterings, the leaves partially recovered themselves, and at the end of the experiment neither Oidium nor mildew was to be seen either on the foliage or on the berries. Cabbages, Cauliflowers and Potatoes were treated in the same way, the receptacle containing the liquid to be injected being placed at a height of 3 or 4 feet above the collar which is pierced by a funnel-shaped cannula in the same way as in the case of the trees, an indiarubber pipe connecting the receptacle above with the cannula below and permitting the entry of the liquid into the tissues of the plant.

We must refer to M. Simon's paper for the full details. We have said enough, we hope, to induce our experimenters to set to work. Assuming the correctness of M. Simon's conclusions, the treatment of "Silver leaf," for instance, ought to be easy. The great difficulty would be to know in what proportions the iron sulphate, or whatever substance may be employed, should be used. This can be determined by experience only. Here is work for the scientific director at Wisley.

SINGLE-FLOWERED CHRYSANTHEMUMS.—

The introduction of varieties with newer and brighter tints in the florets, extreme freedom of flowering, and the fact that they can be had in flower both early and late in the season, have won for single Chrysanthemums much popularity, and their culture is becoming more general every season. Some of the flowers have a very symmetrical form, while in others the florets are more or less ragged in appearance, and still others have quite rolled or fluted florets. To this latter section belongs the pretty pink or mauve-coloured Thirza Cherry, shown at fig. 9, which is reproduced from a sketch by Mr. WORTHINGTON



FIG. 9.—SINGLE CHRYSANTHEMUMS MISS H. HAMPSON AND THIRZA CHERRY. (See page 8.)

SMITH, while the variety *Miss H. Hampson*, a beautiful white *Chrysanthemum* for which Lord **ALDENHAM** received an Award of Merit at the meeting of the Royal Horticultural Society, on November 20, belongs to the symmetrical type. The flower, however, loses none of its beauty from its regularity; it is not more regular than the Queen of the race, the beautiful flower named after **MARY ANDERSON**, which, although in cultivation for so many years, is still without a rival. The variety under notice has some likeness to the older favourite, and we should not be surprised if it is partly derived from that variety. The axillary flowers develop perfectly for one foot down the spray from the top bud and many of them are in flower at the same time. Other single-flowered varieties were illustrated in our issues for December 15 and December 29, 1906.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will be held on Tuesday next, January 8, in the Society's Hall, Vincent Square, Westminster, S.W. A lecture on the "Introduction of the American Gooseberry-mildew into England" will be given by Mr. E. S. SALMON, F.L.S., at 8 o'clock.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, January 14, 1906, when the discussion on the paper read by Mr. E. H. BLAKE (Fellow), on November, 26, 1906, and entitled "Some Notes on Sanitary Law," will be continued.

SOME OF THE PLANTS IN FLOWER IN THE OPEN AIR AT LA MORTOLA ON CHRISTMAS DAY.—Sir THOMAS HANBURY writes as follows:—In the accompanying list of plants in flower here in the open, I have only included some of the more noticeable; a complete list would show a total of over 400. The season is normal; as yet I have seen no ice, and the temperature even in the early morning is generally about 40°; at many places along the coast rather sharp frost has prevailed, dealing death to the enormous quantities of Carnations now cultivated, not only by horticulturists, but also by small peasant proprietors.

Abelia chinensis
Aloe abyssinica
" *arborescens*
" *ciliaris*
" *socotrana*
Acacia Farnesiana
" *platyptera*
" *podalyrifolia*
Aponogeton distachyum
Banksia integrifolia
" *marcescens*
Begonia macrophylla
Bryophyllum crenatum
Buddleia americana
" *asiatica*
" *auriculata*
Brachychiton luridum
Brassica insularis
Cadia varia
Chimonanthus fragrans
Crassula impressa
Cyrtanthera magnifica
Crocea saligna
Crossosoma californicum
Cestrum Schottii, etc.
Colquhounia vestita
Cassia artemisioides, etc.
Camellia japonica
Canarina campanulata
Datura arborea
" *sanguinea*
" *suaveolens*
Eriocapulus africanus
Felicia abyssinica
Grevillea Thelemanniana
Hakea suaveolens
" *varia*
Ionopsidium acaule
Impatiens Holstii
" *Oliveri*
" *Sultani*
Iochroma coccinea
" *lanceolata*
Jasminum odoratissimum
" *primulinum*
Kniphofia primulina
Kleinia nerifolia
" *anteuphorbium*
" *odora*
Lantana Sellowiana
Linum trigynum
Lippia asperifolia
" *lycidoides*

Lophospermum erubescens
Loeselia coccinea
Mamillaria rhodantha
Mesembryanthemum
" *linguiforme*
" *molle*
" *stellatum*
" *rubricaulis*
" *felinum*
" *tigrinum*
Montanoa bipinnatifida
" *molissima*
Mirassolia diversifolia
Othonna carnosa
" *tripinervia*
Passiflora racemosa
" *capsularis*
Pirus communis, some early flowers
Poinsettia pulcherrima
Plumbago capensis
Panax aculeatus
Rosa, many garden forms; as well as *R. bourboniana*, *fulgida*, *sinica* and *Bank-sia*, etc.
Salvia Herrii
" *involutrata*
" *semitrata*
" *Sessei*, etc., etc.
Senecio longifolius
Stapelia grandiflora
Solanum cyananthum
" *Seaforthianum*, etc.
Tecoma capensis
" *jasminoides*
" *stans*
Thunbergia coccinea
Tetrapanax papyrifera
Templetonia retusa
Antholyza aethiopica
Cotyledon macranthum
Cypripedium insignis
Clematis cirrosa
Correa alba
" *Lawrenceana*
Euryops spathaceus
Eupatorium micranthum
Iris unguicularis
Lavandula abrotanoides
Oreopanax Epremesniliana
" *Thibauti*

—Thomas Hanbury, *La Mortola*, Christmas, 1906.

CHOISYA TERNATA.—We have before us a photograph of a plant of this beautiful shrub which was flowering in December for the third time in a garden near Hayward's Heath, Sussex. The shrub is some 10 feet in height, and is in a sheltered corner.

"**WAKE-UP, ENGLAND!**"—This famous exhortation was addressed by the PRINCE OF WALES to his fellow countrymen on his return from his travels. Our neighbours, the French, feel the same necessity, for at a meeting of cultivators interested in the cider industry, the cry was "*Reveillons nous!*"

THE BRANDEGEE HERBARIUM has been presented to the University of California by Mr. and Mrs. BRANDEGEE. It is especially rich in type specimens collected in Mexico and in California, and is the more valued as many similar specimens were destroyed in the great fire which ravaged the Herbarium of the Californian Academy of Sciences.

NICE.—The *Société Centrale d'Agriculture, d'Horticulture et d'acclimatation de Nice et des Alpes maritimes* is organising a great international exhibition of agricultural and horticultural products to be held in Nice from Wednesday, March 13, to Sunday, March 17 (both days inclusive). Schedules may be obtained on application to the secretary of the society at Nice.

POTATO DEMONSTRATION.—Messrs. SUTTON & SONS have issued a series of illustrations showing the results of the various experimental trials carried out last season near Reading, together with descriptive notes. We have on more than one occasion referred to these experiments, and need only now say how valuable is the record which Messrs. SUTTON have now presented to us. The differences between the typical *Solanum Commersoni* as grown under several conditions, and the violet form alleged to have arisen from it by "mutation" are well shown. Other experiments are in their way as remarkable, as, for instance, those showing the manurial value of withy rods and those intended to show the relation of tuber-formation and flower-production. *Epicure* (early) and *Up-to-Date* (late) yielded the heaviest crops in their respective sections. The comparative trials of crops derived from "seed-tubers" ripened in Scotland, Ireland, Lincolnshire, and South England show the advantage of Irish and Scottish "seed," probably because the more equable climate ensures a more gradual and continuous growth of the tuber. Experiments made to show the results of planting tubers known to be diseased need to be repeated before safe conclusions can be drawn. As to the size of the "set" which is most advantageous to plant, the results show that large sets (weighing, say, about four ounces) are the most productive, though where a large area has to be planted, medium-sized sets would be preferable. There were several other trials to which we cannot now further allude, unless it be to express the hope that they may be repeated in the coming seasons as nearly under the same conditions as before. We may then ascertain, other things being equal, what are the effects of variations in climate and season. In the meantime, we can but express our sense of the careful way in which the trials have been carried out, and of their very great practical importance.

SEED-POTATOS.—The Department of Agriculture, and technical instruction for Ireland, has lately issued a leaflet detailing the results of a further trial on the use of sprouted Potatoes in planting. These experiments on late varieties fully confirm those of previous years, and show a substantial increase in yield by the use of sprouted tubers. Numerous varieties were tested under like conditions, but the results were so practically uniform that they may be regarded as conclusive.

POTATOS.—The results of a comparative test of 51 varieties of Potatoes at Summer Hill, Mallow, Co. Cork, 1906, made by Mr. J. F. WILLIAMSON, of Mallow, have been made public. A single pound of each variety (divided into 12 sets, as far as possible of equal size, and all except 8 varieties, comprising 12 whole tubers) was planted 15 inches apart in drills 30 inches wide. All were planted on April 11, and with the object of testing relative resistance to disease they were purposely left unsprayed. All (Second Earlies as well as Maincrop) varieties were raised between September 10 and 20. The previous crop had been autumn-sown cabbage plants, following vetches on lea. Immediately previous to planting a mixture at the rate of 6 cwt. per statute acre, consisting of four parts superphosphate, and one part each of sulphate of ammonia and sulphate of potash, was sown on the drills over a medium dressing of farmyard manure. The yields have been certified by independent public men, who kindly supervised the raising on different dates. The consistency of the relative cropping power of some of the varieties during the four years over which these trials have extended is noticeable, as will be seen from the following table:—

	1906.	1905.	1904.	1903.
Duchess of Cornwall ...	2nd	1st	1st	1st
The Factor ...	5th	4th	9th	13th
Dalmeny Beauty ...	6th	11th	4th	4th
Scottish Triumph ...	19th	10th	18th	12th
Carter's Snowball ...	10th	23rd	27th	28th
Black Skerries ...	42nd	30th	33rd	32nd
General Buller ...	41st	27th	24th	33rd

(In each year over 50 varieties have been grown.)

The following varieties showed more or less disease when raised. It must, however, be remembered that none were sprayed, and that the Second Earlies should have been raised sooner. Considerably diseased—Windsor Castle, British Queen, Ireland's Best, Great Scott, Diamond Reef, Dalmeny Radium, Maxim, Gold Reef, Old Champion, Carter's Snowball. Diseased—General Buller, Dalmeny Regent, Million Maker, The Colleen, Table Talk, Johnson's Diamond, Engineer, Lord Dundonald.

PRIZES FOR SHREWSBURY.—Messrs. W. BULL & SONS send us particulars of certain special prizes they will offer for collections of nine distinct kinds of vegetables to be exhibited at the Shrewsbury Show on August 21 and 22 next. The first prize will consist of a silver cup, value 5 guineas, and £6 in cash. There are six cash prizes which, together, amount to £17 10s.

ORCHIDISTS AS SURREY JUSTICES.—FRANCIS WELLESLEY, Esq., Westfield, Woking, and W. A. BILNEY, Esq., Fir Grange, The Heath, Weybridge, have been appointed Justices for the County of Surrey. JEREMIAH COLMAN, Esq., Gatton Park, is Chairman of the Reigate Division. All the gentlemen named are members of the Orchid Committee of the Royal Horticultural Society.

THE UTILISATION OF CANAL AND RAILWAY BANKS.—The area devoted to the cultivation of Apples, fruit bushes and nuts has been considerably increased in the vicinity of Berlin, by planting the banks, dams and strips of land of the Teltow Canal. Besides planting Apple trees and Currant bushes, experiments have been made to carry out the cultivation of Hazel nut bushes on the sloping banks, as hedges; and it is the intention to carry out the design on a large scale, and to carry the produce by water to the city, as being the most convenient and cheapest mode of transport. The same kind of planting will be initiated on the Royal Railway in the neighbourhood of Erfurt, wherever the land is suitable, the railway company supplying the trees or paying the cost if undertaken by others. Moreover, the use of the land so planted will be made over to the officials and workmen connected with the railway in small portions, free of charge for the term of five years, on the condition that they agree to carry out the cultivation of the land in a proper manner.

RUBBER.—Dr. WILLIS, in an article in *Nature*, gives an account of the introduction of the rubber tree (*Hevea brasiliensis*) to Ceylon, through the mediation of the Royal Gardens, Kew. In 1897 Dr. WILLIS, who succeeded our old friends and correspondents THWAITES and TRIMEN, in the directorship of the Peradeniya Botanic Garden, made the discovery that a second tapping of the tree made within 10 days of the first will yield a larger supply than that obtained originally. Only in the fifth successive week did the supply of latex fall below that obtained in the first week. From this it was calculated that in the tenth year a rubber plantation might show a profit of 27 per cent. In Ceylon at the present time there are more than 104,000 acres planted with rubber, principally the *Hevea*. *Ceara* rubber, *Manihot Glaziovii*, and *Castilloa elastica* have also been tried with more or less success, but none of the other rubber-producing trees have proved profitable. In the Malay peninsula, through the exertions of Mr. RIDLEY, 50,000 to 60,000 acres are devoted to the growth of the Para rubber (*Hevea*). Mexico is reported to have 20,000,000 trees of *Castilloa* on about 100,000 acres. The price of rubber has so greatly risen that the pioneers of the cultivation have reaped large profits, and there is a constant increase of growers anxious to participate in the good results. The rubber exhibition held recently in Ceylon has already been alluded to in our columns. "Taking it altogether, the creation of the now great rubber industry, and its rapid progress from very rough and crude methods to a highly progressive and scientific spirit, is entirely the work of the Botanical departments of Ceylon and Singapore, and they may justly pride themselves upon the result." This will find a universal echo, while a due share of the credit must be allotted to Sir WILLIAM THISELTON DYER and the officials of the Royal Gardens at Kew.

"LE BAMBOU."—The December number of this periodical, exclusively devoted to matters connected with the Bamboos, either wild or cultivated, is before us. The articles give evidence of great knowledge of the subject and of extended research. Cultural details are not omitted, so that we may heartily commend the periodical to those readers conversant with the French language and interested in the history, culture, and uses of the Bamboos. Communications should be addressed to M. J. HOUZEAU DE LEHAIE, Ermitage, Mons, Belgium.

SOLANUM COMMERSONI.—At a Kochkunst Ausstellung (cooking exhibition), held at Cologne towards the end of last September, some tubers of this plant were shown by the cultivator, Hrn. GUSGRATTI, of Alfter, a hamlet situated on the hills near the city, and these were shown in the basket in which they had been grown. It was alleged that the species will succeed in any kind of soil, even in mud, the tubers growing half in the soil and half above the surface, and that they attain to an extraordinary size. The cropping quality of this horticultural wonder was said to be twice as great as that of any other known species. The British raisers of new varieties of Potatoes must bestir themselves, or the varieties "made in Germany" will excel their best productions.

SOLANUM COMMERSONI VIOLET (LABERGÈRE).—M. WELKER relates his experiences in the last number of the *Journal de la Société Nationale d'Horticulture*. He asserts that, having attentively watched the development of Labergère's variety growing intermixed with Blue Giant, but separately labelled, he had been unable to find any difference between the two at any period of the growth.

THE "BLANCOARD" FUND.—Mr. C. HARMAN PAYNE acknowledges further donations to this fund, amounting to the sum of £4 12s. 6d.

THE PREVENTION OF CORRUPTION ACT came into operation on January 1 and will, we trust, contribute to raise the great industries of the country to a higher level. The lawyers will benefit in their endeavours to define what is "secret and corrupt," but the honest man will be safely guided by his own conscience, and may comfort himself by the reflection that a complimentary gift at Christmas or when some special service has been rendered is not likely to induce the Attorney-General or the Solicitor-General to sanction a prosecution unless the gift is "corrupt" in the sense of being given as a secret discount or in the hopes of receiving an order.

AN OLD SUBSCRIBER.—It was very gratifying this week to get a letter from M. TRANSON, of Orleans, who, for the 53rd time, sends us his annual subscription. Everyone at all familiar with continental establishments knows TRANSON, of Orleans, at least by name, and will, we are sure, join with us in hoping that for several years to come we may count him among our subscribers.

THE GREATEST FRENCHMEN.—Fifteen millions of voters have given their individual opinions as to the relative pre-eminence of distinguished Frenchmen. Somewhat to our surprise, we must own, but with infinite satisfaction, we find PASTEUR heading the list with 1,338,425 votes. VICTOR HUGO came next with 100,000 votes fewer; CURIE, PARMENTIER, ARAGO, and CHEVREUL are among the foremost. The French nation seems to have realised that there is some other form of "gloire" besides military renown, and that the greatest benefactor to humanity is the man of science and research.

THE LATE COUNT DE KERHOF DE DENTTERGHEM.—All those interested in progressive horticulture, and especially visitors to the Ghent quinquennial, will realise the extent of the loss entailed on European horticulture by the death of the President of the Société Royale d'Agriculture et de Botanique de Gand. Many such persons will feel it a privilege to contribute towards the memorial which is to be erected in Ghent to perpetuate the memory of a man as remarkable for the number, variety and excellence of his public services, as for his personal character. Subscriptions for the above purpose may be sent to Dr. MAXWELL MASTERS, F.R.S., 41, Wellington Street, Covent Garden, and will be acknowledged in these columns.

ECONOMIC BIOLOGY.—We notice in the current number of *Nature* that at the annual meeting of the Association of Economic Biologists, to be held in Cambridge on January 9 and two following days, the following among other subjects are to be brought forward: Cereal Breeding by Mr. BIFFEN; New Hemipterous Fruit-Pests by Mr. F. V. THEOBALD; The American Gooseberry-mildew, by Mr. E. S. SALMON; The Successful Extermination of the Black-currant Gall-mite (big bud), by Mr. W. E. COLLINGS; The Geographical Distribution of the Principal Rubber-plants, by Mr. W. G. FREEMAN; The Spruce Gall and Larch Blight Disease caused by Chermes, by S. R. BURDON, &c.

Publications Received.—*Bulletin of Miscellaneous Information, Royal Gardens, Kew.* No. 8. 1906. Contents: Oil-grasses of India and Ceylon, with plate, by Otto Stapf. Cultivation of Citronella Grass in Java, and on Lemon Grass in the Malay Peninsula. *The Queensland Agricultural Journal*, November, 1906. U. S. Department of Agriculture, *Conditions affecting Legume Inoculation*, by Karl F. Kellerman and T. R. Robinson.

TRADE MEMORANDUM.

Mr. J. WORT, who has been with the firm of Messrs. B. S. Williams & Son, of Holloway, for over 24 years, has entered the service of Messrs. Dickson & Robinson, seedsmen, Manchester, and will represent this firm in the south of England.

THE COUNTRY-GARDEN.

THERE is more scope for individual character in the country-garden than there is in the majority of town or suburban gardens, for those in the country, as a rule, are more irregular in shape, and, more often than not, their outside settings may be taken into account, as they add materially to their character and beauty. To these things the country-gardener is often blind, or, at any rate, indifferent, so that he takes no advantage of them. They are, however, considerations that count for much in the beauty of the whole.

How shall we secure individual character in the country-garden? First and foremost, I think, by launching out a little from the narrow limits that now rule. Let us set ourselves to study the capacities for beauty, the true decorative value of a wider range of hardy plants, perennial, biennial, and even annual. It is the fault of a number of our English gardens that they are too much alike, and when I say that, I mean that we see the same varieties of flowers in each. This detracts immeasurably from the general interest. Let us say, for argument's sake, that the plants seen everywhere have been proved eminently desirable. This is to be taken for granted. Let us grow them by all means, but not so exclusively that we have no space to devote to some of the less familiar forms of plant-life. It is the rarer and more unfamiliar that go far to make the interesting garden, if, at the same time, they have other qualities that make them good garden subjects.

We must remember that it is easier and far more inexpensive now than it was even ten years ago to grow these rarer plants, because the seeds are more readily obtainable, and it is quite certain that gardening in England received a wonderful impetus when packets quite inexpensive (but not cheap, because the number of the seeds is so small) became purchasable. This small number of seeds answers the purpose a great deal better than a larger and more expensive packet containing enough seed to stock the entire garden.

It will be my object in these short papers to try and bring before the notice of my readers plants that, really and truly, add both interest and beauty to our gardens, and to say why these plants deserve their distinctive places. It may be distinctiveness, or beauty of form, or a quaintness of habit, or growth, that give them a unique value. It may be the particular time that a plant flowers that makes it invaluable, or the long season over which it is in blossom. It may even be the size of the flower that shall fit it for some especial position. These are matters of vital importance in achieving a beautiful garden, but nine out of ten English gardeners do not trouble their heads over such matters (!); and I am sure I am right in saying that the reason for this is that they have not realised that such considerations are needful. They are needful. The time has come when our gardens may become not only realised dreams of loveliness but, at the same time, the flower-garden, to a great extent, of almost every country in the world except those within the tropics, while we may even have representatives from these.

Let me speak to-day of foliage plants only. No border should ever be planted without due consideration to the value that certain types of foliage will give to the general character. The clean-cut, stern foliage of the swordblade type is one that yields great distinction of form amid a mass of a more indefinite and less marked character. Are we utilising such a subject as *Phormium tenax* as we might? To my mind this is a better border subject than the *Yucca*. It springs broadly out of the soil, with a bold, upstanding effect. It is evergreen, and it is hardy, and grows into massive clumps. In fact, it has so much character that it should be in such a position that this is duly emphasised. Other plants should not be established too near

it, nor should anything high enough to hide any part of it be planted in front of it. Let it stand out for all that it is worth—and it is worth a good deal.

Take, again, the case of the Pampas grass (*Cortaderia*). Are we making all that is to be made of so grandly decorative a subject? March or April is the season to transplant this. Can we remove it to a more effective position than the one it now occupies? It must have the maximum of sunshine and a good open place, but let it be a beautiful picturesque feature in the garden. Last autumn I saw some grand clumps in an old garden, hidden away and half choked with tall perennials in an out-of-the-way corner. Such a subject as this is surely worthy of the utmost prominence. Its beauty and gracefulness should be made to tell as a keynote, as it were. Out-of-the-way corners are not for plants such as these. *Practical Gardener*.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM ACTÆUS LANGLEYENSE.

This beautiful hybrid *Cypripedium*, fig. 10, is not new, for it was granted an Award of Merit by the Orchid Committee of the Royal Horticultural Society as long ago as January 27, 1900, but it was shown in such fine condition by Major Holford at the meeting of the R.H.S. on December 15 that the committee raised the award to that of a First Class Certificate. As indicated by one of the varietal names, the plant was raised at Langley by Messrs. James Veitch and Sons, Ltd. The parents were *C. insigne* Sanderæ × *C. Lecanum* giganteum. As will be seen on reference to our figure, the dorsal sepal is exceptionally handsome, the white ground being sparsely spotted with purple and blotched at the base with green. The petals and lip are yellow, the former with a slight brown line and some dark-coloured hairs at the base.

CYPRIPEDIUM ACTÆUS, TRACEY'S VARIETY.

AMONG a very interesting series of varieties of *C. Actæus* flowering with Mr. H. A. Tracey, Amyand Park Road, Twickenham, this very pretty and novel variety is prominent by its good shape and attractive colouring. The lower half of the dorsal sepal is pale greenish yellow, with distinct blotchings of light purplish chocolate, which change to rose-coloured spots on the lower part of the upper white portion. The petals are broad, yellow-tinged, and spotted with purple. The labellum, which is a very attractive feature, is reddish rose with the upper margin and the interior bright yellow. The staminode is yellow, with an orange centre. It was obtained from a cross between *C. insigne* Sanderæ and *C. Lecanum* Masreelianum. Another pretty form of the same class, but lighter in colour, and several of the commoner green and white forms are also in bloom. *Cypripedium insigne* Amesianum, a worthy variety of the *C. insigne*, Harefield Hall class, but with a bright colouring of *C. insigne* Chantinii, is flowering with Mr. H. A. Tracey, Orchid Nurseries, Twickenham, out of a freshly-imported batch. The flowers are large and of fine substance, the lower half of the dorsal sepal yellowish, with large chocolate-purple blotches, the upper half white with a few rose-purple spots. The broad petals and lip are yellow, the former spotted with chocolate-purple and the latter tinged with the same colour. It is a strong grower, and well worthy of a place among choice forms of *C. insigne*.

"LINDENIA."

AFTER a considerable interval between the publication of Part 8 of this illustrated work on Orchids, Parts 9, 10, 11, and 12, necessary to complete vol. xvii., have come to hand together, and complete the work on the original

lines, if the intention to discontinue it in its present form recently expressed is adhered to. The issue of the present four parts give coloured plates and descriptions of the following plants:—

Cattleya Hardyana var. *majestica*.—A very finely-coloured variety near to *C. H. Laversmensis*, for which Lord Rothschild received a First-Class Certificate at the Royal Horticultural Society, July 24, 1894. Sepals and petals rich purplish-rose, mottled and veined with white; lip claret-crimson with gold-coloured disc.

Cattleya Pannemackeriana (*Hardyana* × *Rex*).—A very distinct hybrid. Sepals and petals pale buff-yellow, tinged with rose; lip

Cypripedium Lucienianum superbum.—A very showy flower, with the large white dorsal sepal freckled with rose and bearing dark-purple dotted lines. Face of the lip tinged with purple; the whitish petals tinged with rose and spotted with chocolate colour.

Cypripedium Chantino-Lawrenceanum.—A large-flowered hybrid; a variety of *C. Umlaufianum*.

Cypripedium Vialianum (*Lathamianum* × *Drurii*).—Upper sepal white with a red-brown base; the rest of the flower yellow tinged with brown.

Cypripedium Théodore Bullier (*tonsum* × *villosum*).—A distinct, light-coloured hybrid with strong evidence of *C. tonsum*. Raised by



FIG. 10.—CYPRIPEDIUM ACTÆUS LANGLEYENSE. Photo. by J. Gregory.

ruby-crimson, with the fine veining in the throat seen in *C. Rex*.

Cattleya Triana Brandneriana.—A noble white flower with rich purple front and orange disc to the lip.

Cattleya Triana Fascinator.—The sepals, and very broad petals, pale lilac with the white ground showing through; lip rosy-crimson with orange disc.

Cypripedium glaucophyllum.—The ally of *C. Chamberlainianum*, illustrated in the *Gardeners' Chronicle* supp., Dec. 12, 1903.

Cypripedium insigne cinnamomeum.—A singular yellow variety with reddish markings.

Cypripedium Lathamianum princeps.—Upper sepal white, with feathered rose lines; petals and lip yellow, marked with red-brown.

Monsieur Opoix in the gardens of the Luxembourg.

Odontoglossum chromaticum.—A supposed natural hybrid between *O. Hallii* and *O. polyxanthum*. Segments narrow and nearly equal. Sepals and petals pale yellow, spotted with red-brown. Lip broad, white with a yellow crest, bearing reddish lines.

Odontoglossum crispum Gaircanum.—The beautifully-coloured variety for which Norman C. Cookson, Esq., Oakwood, Wylam, received a First-Class Certificate at the Royal Horticultural Society, May 26, 1903. One of the most remarkable and finely-blotched varieties of the favourite species.

Oncidium incurvum album.—The white variety of the graceful rosy-lilac coloured species.

VEGETABLES.

AUTUMN AND WINTER CABBAGES.

IN the spring I wrote of the value of early Cabbages at that season (see *Gardeners' Chronicle*, April 21, p. 242), and referred to later kinds for furnishing a whole year's supply. The following remarks concern the value of these vegetables at this season.

Autumn and winter Cabbages are not largely grown, owing, doubtless, to other members of the genus *Brassica* being available at these seasons, but the smaller kinds of hardy Cabbage are valuable at a time when there is none too many good vegetables to be had. No note on this subject would be complete without reference to the Colewort type, but these do not call for any lengthy remarks, for their culture is well known; but I would add they are most valuable to fill in the interval between the late summer and early autumn supplies. For later use I prefer the winter Cabbage to the hardy green Colewort, using the Rosette for the earlier supply. There are not many distinct types of winter cabbages, but quite enough exist for the purpose: these I will enumerate, and also their season. A large grower of these vegetables once informed me that any variety could be grown for winter if sown for the purpose. Such, however, is not the case, for even the true autumn Cabbage—the Rosette Colewort—bursts and decays in bad weather, whereas the winter kind, with a firm, close heart, often of a Drum-head shape, is proof against the changes of our variable climate. I do not advise the growing of large varieties of Cabbages, as the larger kinds are not the best, they have too much stalk. For some seasons I grew Sutton's Favourite for a late autumn supply. This is a very dwarf variety, with a solid heart, and, sown in May or June, will furnish good "heads" well into December. The best autumn and winter Cabbages are those having a compact growth and with few waste leaves. I prefer a dwarf variety. Some years ago, in order to obtain a winter Cabbage with the best possible flavour and having a certain degree of hardiness in its constitution, I raised a variety from the Rosette Colewort crossed with Christmas Drumhead, and this has the edible quality of the first-named cabbage, but is a much firmer and better winter variety. This I called the St. Martin, and it is an excellent early winter variety, somewhat flatter in shape than the Rosette, but not unlike it in quality and growth. Another excellent late autumn Cabbage for use at this season—indeed, it may be called a mid-winter variety—is St. John's Day, a very good Cabbage to follow the Colewort. Sown in May or June, according to the locality, it will be found a reliable vegetable. It furnishes serviceable "heads" at a season of the year when "greens" are difficult to procure, and these are not coarse in flavour, indeed, they are little inferior to the spring Cabbage, and, in my opinion, are much superior to the coarse Savoy Cabbage so much grown. The next of the late winter kinds to note is the Christmas Drumhead, and, as its name implies, it is in season at Christmas, but, being of a flat, drum-head shape, very firm, and with leaves folding closely over each other, with scarcely any waste, this variety is as good in February and March as at Christmas, and it is not readily injured by severe weather. Sown in the late spring or early summer months, it will give a supply till the early spring Cabbages are ready, and the quality is excellent. This is also a dwarf grower, and does not occupy much space, though it is larger than the earlier ones named above.

The above four varieties will give a full supply at the seasons named, and as their growth is made late in the summer and early autumn, the plants should have an open position and be planted in well-cultivated soil that has been deeply dug, for deep culture is quite as important as the affording of manure. Allow ample room in the seed-bed to secure strong plants, and should the ground not be available for their transplanting when they are ready, it is advisable to replant the seedlings a few inches apart, and to transplant them finally in their permanent quarters. This method will ensure strong, sturdy plants and furnish good returns in a short time. *Geo Wythes.*

PLANT NOTES.

MEDEOLA ASPARAGOIDES.

In this climber gardeners and florists possess an easily grown plant which is capable, under good management, of affording much material for cutting from the month of February till April.

The seed should be sown in boxes or pans in the spring, the seedlings being shifted, as soon as the tubers have formed, into small 60's or large thumb pots to the number of three or four, in which they should be encouraged to make roots. In the month of July a bed in a house should be prepared by deeply digging in some short, decayed stable dung. The young plants should be set out in lines at 2 feet apart, and the young growths to the number of two or three should be secured to strings running upwards from the ground level to the roof. Any shoots coming from below and all side shoots should be removed after this is done, in order to secure fine, regular main growths. At the first the chief factors are abundant warmth and moisture, but so soon as the plants have reached the height of 3 feet, syringing must be only moderately carried out, otherwise the leaves will become of a yellow tint.

The tubers, when allowed to remain undisturbed, afford capital growths for a series of years, and these increase in vigour year by year. These strong growths are much in demand by the commercial florists, for the reason that they admit of division, and thinner growths are likewise sufficiently abundant. The older the plants the smaller the degree of warmth required, and the greater the amount of ventilation necessary, conditions of cultivation which make for longer durability of the growths when cut from the plants; the "leaves" come likewise smaller, which is an addition to their attractiveness, and the growths remain for a longer period in a perfectly healthy condition. The earliest period at which newly-planted *Medeola* growths may be cut is the month of September; still, they are not then quite perfect. The succeeding growths attain a height of 2 to 2½ yards. An entire glasshouse planted with *Medeola* cultivated in the above manner is a pretty sight.

SALVIA SPLENDENS COMPACTA.

This new variety of a showy species, for a long time cultivated for early winter-flowering, is well worthy of the attention of gardeners. The flowers are of a bright scarlet colour, as in the type form, and the plant reaches a height of only 1½ feet. If planted out, when danger from frost is passed, in the month of May, the plant will begin to blossom in June and continue in good flower till November. *F. M.*

THE ROSARY.

ROSE MEMORANDA FOR JANUARY.

SEE that all newly-planted trees are well mulched with manure and made secure in the ground. If the soil is in a sticky condition and not fit for planting to be properly accomplished, the plants will be better "heeled in" until February or March. All vacant ground should be trenched and well manured in readiness for later planting, and the Roses will succeed better in land that has been worked in advance. Established Roses in pots will now be growing freely, and the temperature of the house may now be increased to 55° in the day time and a few degrees less at night. If former instructions are followed, the plants should now be breaking evenly and strongly, and a little ventilation can be given a few hours daily on the south or west side of the house on favourable occasions. On bright mornings a light syringing overhead will tend to keep aphids in check and cleanse the foliage. The Rose is impatient of a dry atmosphere; cool and rather humid atmospheric conditions are the most desirable, although excess of moisture thus early in the season must be guarded against. A great enemy to the Rose is mildew, and precautions must be taken to prevent it. The best antidote for this fungus is "sulphur-vivum" and soft soap, 1 lb. of each ingredient to be well mixed together in a warm solution, and when the hot-water pipes are quite warm, paint them thickly all over with the fungicide; the fumes will spread in the house, and touch every particle

of the foliage, and one application is usually enough, but if the foliage is very badly affected a second is desirable. This is by far the best remedy against mildew. Ordinary flowers of sulphur dusted on the foliage only partially effects a cure, whereas the former thoroughly eradicates the fungus without disfiguring the foliage. Roses that were potted during the autumn and which are already pruned, can be placed in the cool end of the house in a temperature of about 50°, and kept rather dry at the roots for a time, giving them an occasional sprinkling of tepid water overhead and about the paths, on bright mornings. Allow very little ventilation for the first week or two of forcing, and gradually increase the temperature to 60° with the increase of sun power and as the season advances. Grafting Roses on established stocks will now be in full operation. Place the stocks under frames in a glass-house, and allow a temperature of from 60° to 65°, until the union is effected. Open the lights for a few hours each morning after the first week or so, to expel excessive moisture. The earliest batch of grafted plants should be ready for taking from frames early in February, when they should be stood in the house near to the glass. After January, dormant grafting should cease, and herbaceous grafting take its place, soft wood for the purpose being taken from the earliest forced plants; later, the growing tops from the pushing grafts will furnish material. Besides dormant-grafting in autumn and herbaceous grafting in the spring, it is surprising in how many different ways the propagation of the Rose can be effected. Cuttings 9 inches in length obtained from matured wood, and inserted in October, or cuttings taken from forced plants during the spring and "struck" on hot beds, and, later in the season, from well-ripened, stubby shoots planted in sandy loam under cloches or hand lights, and, lastly, late summer and autumn budding outside, are some of the best methods of propagating the Rose. *J. D. G.*

NOTICES OF BOOKS.

SUCCULENTE EUPHORBIE. By Alwin Berger, Curator of Sir Thomas Hanbury's Botanical Garden at La Mortola. Published by Eugen Ulmer, Stuttgart.

WE have in this work of 130 pages octavo, written in German, one of a series of illustrated handbooks which deal with succulents, or as they are called in that language *Feltflanzen*, viz., Aloes, Agaves, Mesembryanthemums, Crassulas, Cacti, and plants of allied genera. As the author states in his preface to the present work, these various handbooks will be issued in quick succession, each complete in itself. They are intended, in the first place, for the use of those who are engaged in the cultivation of succulents and Cacti in general, and as a guide to the identification of the numerous species, and for affording all that is worth knowing about them in a condensed form.

The information afforded is such that it will enable anyone, with a little trouble, to distinguish and identify any unknown forms. No such work has appeared since Haworth's *Synopsis plantarum succulentarum*, in 1812; and the abundant literature concerning the different genera is greatly scattered through numerous works, thus making a study of the plants without the use of a large library an impossibility. In the century that has elapsed since Haworth's time, the number of genera and species made known has, in many cases, increased tenfold.

The author was induced to publish these various handbooks on succulents by Herr. Harry Franck, of Frankfurt-on-the-Main, a most active member of the German Cactus Society, and who died before the first volume was published. His name is commemorated in *Euphorbia Franckiana*, a species not hitherto described; and his son furnished the photographs for the illustrations of the present work. It will be remarked how large is the number of new species mentioned, many of them old introductions, but which have become lost to cultivation, as so often happens to garden-plants. The descriptions of the plants, with the object of economising space, is not given in Latin, but in the German language; and they

are made as brief as possible, and foreign expressions are avoided.

Herr. Berger acknowledges the assistance and support that he has received from Sir Thomas Hanbury, the owner of La Mortola, in his studies of succulents, and thanks also Professor A. Engler, Director of the Botanical Gardens, Berlin, for his valuable communications, notices, and materials; Professor Dr. G. Schweinfurth for descriptive matter and drawings of Arabian and Abyssinian Euphorbias; Dr. R. Marloth, of Cape Town; Mr. N. E. Brown, and Mr. Cooper, of Kew; Mr. Irwin Lynch, of Cambridge, and others.

It is only a fractional portion of the great order Euphorbiaceæ that is described in the work, and this fractional part consists of plants that are mostly natives of the warm, arid regions of Africa and Asia; their fleshy tissue eminently fitting them as reservoirs of moisture, enabling them to exist during the seasons of drought, and their prickles and poisonous juices—extremely virulent in certain species—affording protection to the plants from browsing animals. The descriptions of the flowers and fruits will mostly interest the botanist; as likewise the mode of growth, the differences of which enabled the author to form various groups, which he designates by the letters A, B, C, D, and E. He then takes each group separately, describing some of the more remarkable species as regards leaves, stems, branches, spines, flowers, capsules, seeds, and giving the natural habitats. The student is thus afforded a ready means of identifying an unknown plant. The illustrations, mostly reproduced from photographs, are very good, but we should have been glad to have seen more of them.

In the short chapter on the cultivation of succulents, and the propagation of those species which, for certain reasons, do not bear fertile seeds, and must be raised from cuttings taken at the beginning of the summer, the observation is made that the old-fashioned mode of heating a glasshouse, in which the tender species are to be wintered, by means of a flue is better for the plants than hot-water heating. The winter temperature for Euphorbias, Stapelias, and some species of Cactus, needs to be only moderate, but the atmosphere must be dry. In many glasshouses, heated by water, the temperature may be kept low, but the air is moist, and it is this moist state of the air that is the cause of so many losses among tender succulents, even under the care of the cleverest gardeners. There are among the non-succulent species of Euphorbia, several which are well known in gardens, viz., *E. pulcherrima* (*Poinsettia pulcherrima* Graham); *E. fulgens* (*E. Jacquiniflora* Hooker); and *E. splendens* Bojer ex Hook, in *Bot. Mag.*, t. 2902, and the variety of it named *parviflora*. A considerable list of authorities is appended, also a full index of the contents of the volume.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

MEGACARPÆA ARMENA.—This is a little-known plant in gardens, but by reason of its peculiar-looking flowers and stately habit, it might find employment as a solitary example in the middle of a bed of other flowering plants, or on the turf in one or more specimens together. The flowers endure for a day or two, but there is a constant succession of them in May and June, and in the latter month new ones develop. The plant is hairy in all parts, and reaches a height of one yard or less according as the soil is rich or otherwise and the climate is favourable. The colouring of the blossoms is pale blue and green, whilst the edge of the corolla is tinged with yellow, and the two upper segments are decorated with two violet-coloured stripes which descend into the throat. A hard shell encloses the seed, which must be removed with a knife before the seed is committed to the soil. The plant is quite hardy, and develops a rosette of large lanceolate leaves, from out of which the head of flowers shoots upwards. Can any reader of the *Gardeners' Chronicle* afford particulars as to the country of origin, and if the plant is known under another name? The figure given together with the note in *Die Gartenwelt* seems to point to the plant belonging to the natural order of Boragines. F. M. [*Megacarpæa* should be a crucifer.—Ed.]

NEPHROLEPIS EXALTATA.—In the instructive article contributed in the *Gardeners' Chronicle* for December 29 by Mr. Drury, I observe a reference to some abnormal fronds that I sent to him more than ten years ago. The member of a local horticultural society, from whom I obtained them, retained the only fertile frond for his own use and gave me those that were barren. I regretted this at the time, as probably had the fertile frond been sent to Mr. Drury that gentleman would have been successful in rearing some young Ferns and watching their behaviour afterwards. The spores from the fertile frond germinated, but as the young Ferns appeared to degenerate my friend's gardener threw them away, although he was an experienced Fern-grower. If I could have secured them, they would have been grown on, but the break-up and removal of my friend's establishment prevented my securing them or the parent plant that had produced the abnormal fronds, although under Mr. Drury's advice I strenuously endeavoured to do so. I grew on some companion plants which were given to me at the time in the hope that one of them might prove to be the rarity, as after the abnormal fronds had been cut it was difficult to distinguish it from the others, but no "mutation" has occurred, and therefore I conclude that the first recorded sport of *Nephrolepis exaltata* was lost after the abnormal crested fronds were sent to Mr. Drury. W. Roupell, *Harvey Lodge, Roupell Park, S.W.*

CARBOLINEUM AS PROTECTION AGAINST INSECTS AND FUNGUS ON FRUIT TREES.—The *Gartenflora*, for December 15, 1906, publishes an article on this important subject, by the Director of the Royal Biological Institute at Dahlem, in which he is more inclined to attribute harm than good to its use on fruit trees, and his views are supported by those cultivators who have used this oil either with or without mixing with other ingredients, such as lime, soap, Bordeaux mixture, &c. The basis of carbolineum is coal tar, obtained in the process of making lighting gas, of which it is one of the by-products. After being distilled from the coal in the retorts, it is again heated and distilled at various temperatures (four usually), each giving a different kind, and the process is similar with the tar or pitch obtained from wood. In Germany there are about 80 carbolineum manufactories, and the various preparations on the market amount to 200 to 300. These preparations in their action on vegetation are different, and but little definite is known about their effects, only that these are mostly injurious, whether applied in winter or summer. F. M.

PHŒASANTS AND PLANTS.—In no case have I heard of pheasants attacking Gunneras. I have, however, heard of rats doing so, by taking the tender young growth. Yellow Crocuses are especial favourites of pheasants and other birds, and I know several places where no Yellow Crocuses can be kept on account of the pheasants, although there are many thousands of whites, blues, purples, and stripes. The pheasants destroy the bulbs as well as the flowers of the Yellow Crocuses, and it is apparently hopeless to plant these in places exposed to their attacks. S. Arnott, *Sunnymead, Dumfries, Scotland.*

RESURRECTION OF "LINDENIA."—I think that it should be good news to all lovers of portraits of beautiful flowers in general, and to Orchid-growers in particular, to hear that the publication by Mr. Linden, of Brussels, of the above-named beautifully illustrated work which was believed to be dead (as no part had been published since February, 1903), has been resumed by the appearance of a quadruple part, embracing Nos. 9, 10, 11 and 12, of Volume xvii., on December 6. It is also announced in the December issue of the *Revue de l'Horticulture Belge* that the first part of Volume xviii. of the work will be published on January 15, 1907. W. E. Gumbleton. [The plants illustrated in these parts are described on p. 12.—Ed.]

A "CHRISTMAS" ROSE.—I am sending you a Rose that I picked on Christmas morning from a standard tree growing in one of our borders. This is a cold part of the country, and we are over 600 feet above sea level. W. H. Collett, *The Gardens, Huntsham Court, Bampton, N. Devon. December 27, 1906.* [Several Roses were in flower at Ealing on that date, but we suspect that the weather on Boxing Day made the specimens the "last of the Roses."—Ed.]

THE WINTERS OF THE "GOOD OLD TIMES."—That quaint old chronicler, Samuel Pepys, for whom nothing was too small or too great to record, gave us a weather note for January 21, 1660-1: "It is strange what weather we have had all this winter; no cold at all, but the ways are dusty, and the flies fly up and down, and the rose-bushes are full of leaves; such a time of the year as was never known in this world before here. This day many more of the Fifth Monarchy men were hanged." The characteristic concluding sentence is decidedly gruesome. A. C. B.

THE WATER SUPPLY IN PLANT HOUSES.—After the fall of snow or hail the water in the receptacles becomes so intensely cold as to be injurious when applied to the roots of plants growing in a warm atmosphere. The temperature of the water applied to stove plants should exceed by 5° that of the atmosphere of the house. Crotons and Codiaums especially are most susceptible to paralysis of the roots by the application of a cold supply, and the effect is frequently noticeable at this season of the year, by the shedding of their leaves. B. Cromwell.

SOCIETIES.

SCOTTISH HORTICULTURAL ASSOCIATION.

AFTER the reading of Mr. Wallace's paper, published in full in our columns by the courtesy of the author, Mr. David Thomson, the President of the association made some comments, which are here reproduced with a few omissions.

Gardening in America is a very much more simple matter than it is here. This statement may appear strange to some of you, but it is a fact, and the reason is not far to seek. In America there are but two seasons—summer and winter. When the winter closes, it is done with, and summer sets in. There are no intermittent frosts and warmth such as we have here. The temperature is not at 60° one day and at 30° the next, and when vegetation bursts into growth it receives no check as it does here, and hence the reason that many plants that succeed out of doors in America, although their winters are more severe, will not exist in this country. Spring frosts, which work such havoc in our northern isle, are unknown there.

Well, gentlemen, I suppose you all know something about the Yankee. America is a big country, and its people all like big things. They all like big boots and big clothes, and especially big hats. They like big button-holes and talk big. They have big hotels, big lakes, and high mountains. When they have an earthquake, it is a big one. When they have a railway smash, it is a big one, and their explosions are awful. Their drinks are peculiar. They have "corps revivers" and "cock tails." It seems that they have big nurseries, and grow some things in big quantities and get big prices for their flowers; but it is quite evident from this paper that they have to depend on Scotsmen for their horticultural products.

Mr. Wallace has mentioned many names in his paper. They certainly all sound Scotch, and seem to have gone from all parts of Scotland, and I am sure we are all pleased to know that they are doing so well, and upholding the great name of Scottish gardeners, and I hope that all of them will join the Scottish Horticultural Association, and send their 2s. 6d. in advance. They have plenty of money out there, and amongst other big things they have, they have some big millionaires—men who count their dollars by millions.

That it is a good thing for a country to have a score or so of men with about a hundred millions amongst them is very doubtful, I think. Only fancy, if that money were more equally divided amongst a greater number of the working people of a country, how much more good it would do, and how much more happiness it would create. Mr. Wallace has not told us if there is a millionaire horticulturist in America, so that we might approach him for a donation to our funds, or that we might persuade him to leave some of his dollars to build a home for horticulture in this city. Some of the names he mentions may be familiar to some of you, and I have no doubt they are. There is one familiar to all horticulturists in this country, and that is the name of Douglas, whose

name must for ever be connected with horticulture in this country, and whose untimely death everyone deplored.

Douglas was the means of introducing many of our best and most useful ornamental trees and shrubs. This raises a thought in my mind. Supposing we were to take away all the hardy trees and plants that have been introduced into this country—which must be called exotics, I suppose—what would be left? What would Scotland be without foreign trees and shrubs? Very nearly a barren wilderness. True, we should have the Scotch Fir or Mountain Pine, but we should have no Larch, no Spruce, no Douglas Fir, no Austrian and no Corsican Pine. We should have the Ash and the Oak, but no Sycamore or Plane tree. I am afraid I am wandering from the subject, and must return to the United States.

There are one or two men that occur to me who have not been mentioned in the paper who have helped to forward horticulture in the Western Hemisphere, and one of them an old member of this association—George Maclure, well known to you all, is now the leading landscape gardener in New York; and Robert Low, an old assistant of my own, is now one of the leading men in the seed warehouse of Messrs. Henderson, who is now placing the expert knowledge he acquired under my tuition at the disposal of the gardeners of the United States. Who the Mr. Elliot was whose forefathers were "Tinklers," I do not know; but am glad to know he was found out to be a' richt.

John Scott, who holds a similar position in the New York Florists' Club that I hold in the Scottish Horticultural Association—at least, in the meantime—I think I remember at Newbattle, and I would here like to shake hands with him across the sea, or send him a wireless message to wish him great joy as a Brother President, and to ask him to send us a paper for our next year's syllabus, for which I will send him one in return, and will send Johnstone out to give them a nicht wi' Burns.

Mr. Wallace's advice to young gardeners who think of going out to America will be of interest to our younger members. It is that "A man wants only health, hands, a good character and a good spade to work his way in this country." Well, a young gardener wants all that in this country, and something more, and that is brains and the desire to improve them; and he also says that "So long as the present system continues in Britain, gardeners will meet with much better encouragement there than in America." What he means, I cannot quite follow; but he cautions the young men of this country by telling us that matters there are very much as they are here, and that there is often a superabundance of applicants for any vacant situation. In his closing remarks he pays a great tribute of respect to Scotch gardeners when he says that "as a class, Scotch gardeners head the list for all-round satisfaction, and I, in conclusion, at this, the last opportunity I shall have of addressing you as your President this year, will express the hope that the young and rising generation of the Scotch gardeners will continue to exert themselves and to educate themselves in such a way that they will long continue to hold the high position they have acquired all over the world. It has been the object of this association to forward their interests, and I trust that it will continue to be so for many years to come.

ROYAL HORTICULTURAL OF IRELAND

DECEMBER 17.—The annual general meeting of the above society was held in the Leinster Lecture Hall, Dublin, on this date, F. W. Moore, Esq., presiding. The annual report was discouraging, for it showed a financial loss of £124. The society's spring show, which of late years has taken the form of a two days' floral fête, was the only exhibition of the year that was financially successful, and this is to be repeated during 1907 some time in April. It is a matter for regret that negotiations with both the National Rose and the National Sweet Pea Societies for holding exhibitions in Dublin during the coming summer have been abortive. Of the eight retiring members of the council, Messrs. F. W. Moore, C. M. Doynne, G. M. Ross, H. P. Goodbody, W. J. Mitchison, and E. Knowlton were re-elected. The other vacant seats on the council were filled by Messrs. R. Anderson, W. F. Gunn, and Professor Houston.

NATIONAL CARNATION AND PICOTEE (SOUTHERN SECTION).

DECEMBER 14.—The annual general meeting of this society was held on the above date, and was well attended by the members. Mr. Martin R. Smith, president of the society, occupied the chair. The report showed a very satisfactory year's work, and it was decided to increase the value of the prizes, and also offer additional ones in many classes in the forthcoming exhibition. The annual exhibition was appointed to be held on Wednesday, July 24th, 1907, in the R.H.S. Hall, Vincent Square, Westminster. It was decided to invite trade exhibits. The new departure, made at the last show, of giving equal recognition to undressed as to dressed flowers gave much satisfaction, and will be adopted on all future occasions. Considering the vicissitudes of the season, the show of 1906 gave every satisfaction, and very keen competition obtained in some of the classes.

The report for 1905, of which 1,000 copies were distributed, contains much useful information, and gives a list of the winning flowers, by which means the best varieties for show purposes are made known to exhibitors. The cost of printing and distributing the report entailed a somewhat increased cost in the working of the society. The balance-sheet showed receipts from all sources of £287 6s. 6d.; the expenditure amounted to £189 11s. 3d., leaving a credit balance of £97 15s. 3d. The amount disbursed in prize money during the year was £88 3s.; the cost of printing and working expenses generally was £101 8s. 3d.

ROYAL METEOROLOGICAL.

DECEMBER 19.—The monthly meeting of this society was held on the above date at the Institution of Civil Engineers, Great George Street, Westminster, Mr. Richard Bentley, F.S.A., President, in the chair.

Admiral J. P. Maclear read a paper on "The Guildford storm of August 2, 1906." This storm shows some very curious and interesting features, in the remarkable violence of the wind, rain and hail, within a small area, and the suddenness with which it burst. There was an area of thunderstorms over the whole of the south of England on the evening of that day. The most violent storm, however, burst over Grayshott on Hindhead at 8.20, and pursued a narrow track through Godalming and Guildford to Ripley, 6 miles north-east of Guildford. The wind was of hurricane force, and blew down an immense number of trees and caused other damage and also the loss of two lives. The rain, accompanied by large hailstones, was very heavy, as much as 1.17 inch falling at Grayshott in 15 minutes. There was a magnificent display of lightning, the flashes being incessant and darting from cloud to cloud.

Mr. R. Inwards read a paper on "The metric system in meteorology." The author did not discuss the general question of the advantages of the metric system over that in use by Britain and her colonies and United States of America, but confined his remarks to the advisability of adopting some uniform system by all the meteorological observers upon the globe.

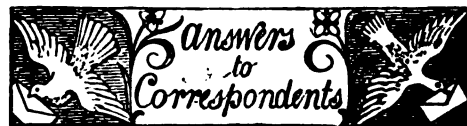
Obituary.

EDOUARD PEETERS, *Chef de Cultures* in the Royal Gardens, Laeken, Brussels, died recently, at the age of 40 years.

ENQUIRIES AND REPLIES.

GAS-LIME AS A REMEDY FOR EEL-WORMS.—In answer to B.A.'s question in last week's issue, gas-lime has been proved to be a good preventive against Eel-worm attack to the Tomato plant. About $\frac{1}{2}$ cwt. (28 lbs.) is sufficient for a cart-load of soil. It should be well mixed with the soil so as to distribute it evenly through the whole mass, giving the heap two or three turnings before using, so as to expose the centre of the heap to the influence of the atmosphere to get rid of the poisonous properties of the gas-lime before it comes in contact with the young

roots. The soil will be ready for use in March if the lime is added at once. If the soil has previously grown Tomatoes, Cucumbers, or Melons, be careful to pick out every bit of root and burn it, because the Eel-worms will remain alive in every portion that is left in the soil. Decomposing plants and roots are frequently to be found teeming with both worms and eggs. Some recent experiments have shown that Strawson's "Vaporite" applied at the rate of 2 lbs. to the pole of land is an excellent preventive against Eel-worm. The gas from the Vaporite will kill all the Eel-worms that are hatched out. J. J. Willis, Harpenden.



AMPELOPSIS VEITCHII: H. R. This plant is most easily raised from layers, but it can also be readily propagated from seeds, cuttings, and "eyes."

ANNUALS BENEATH ROSE BUSHES: J. B. We know of no such work as you mention, but you will find much useful information on this subject in our issues for March 31, 1906, p. 199; April 7, 1906, p. 215; April 21, 1906, p. 247; and May 5, 1906, p. 279, in our Weekly Calendar on Work in the Flower Garden.

ASPARAGUS, &c.: H. R. We cannot trace such a name as Asparagus Sieberianus, not even as a synonym. Send us a portion of the plant for identification.

AUCUBAS NOT FLOWERING: Lenden. The frequent failure of female plants of Aucuba to produce fruits is generally due to the absence of male plants, and consequent non-fertilisation of the flowers. In your case the failure is due to the plants not having produced flowers. We should not subject the plants to heat, or too great a supply of water, but leave them to flower naturally, which they are pretty sure to do in course of time.

BOOKS: T. E. M. *The Book of Market Gardening*, by R. Lewis Castle, obtainable from our publishing department, at the price of 2s. 9d., post free.

ETHERISATION OF RHUBARB, &c.: H. C. Mr. W. Stuart, of the Vermont Experimenting Station, U.S.A., conducted the following experiments with Rhubarb. The roots were dug in the autumn and allowed to freeze. In December they were gradually thawed in a cool cellar. The roots were etherised for 48 hours in an airtight box, using 10 cubic centimetres of ether per cubic foot of space. The plants etherised were of earlier and more vigorous growth, and yielded increased weight of product when compared with specimens left untreated. See also a note on Mr. Jannoch's method of forcing plants by this system in our issue for October 6, 1906, p. 237.

FERN PROTHALLI: P. T. You should bake the soil on the boiler in the stove-hole before you sow the spores. This will sterilize it and kill all fungi present and seeds of weeds. The fern spores must not be germinated in too close an atmosphere, although plenty of moisture is necessary for their germination. When they have reached the prothallial stage, the glass slips covering the pans may be tilted to allow of ventilation, before removing them altogether.

GARDEN SOIL: R. T. So far as we are able to examine the soil received, there appears to be nothing in it that would be likely to cause any injury to the roots of Seakale plants. It is singularly free from humus, and is likely to be deficient in available plant-food. As a Fellow of the Royal Horticultural Society, you should send a sample to Dr. J. A. Voelcker, M.A., 22, Tudor Street, E.C., the society's analyst, who in return for a small fee will analyse it, and thus determine whether or not it contains injurious salts.

GRUBS ATTACKING ROOTS OF THE LILY OF THE VALLEY: R. C. The grubs are those of the common swift moth, "Hepialis lupulinus." These larvae often attack the roots of herbaceous plants. The only practical course we can advise

is to remove the plants to another site, as far as you possibly can from the position they at present occupy. In doing this you must destroy all the grubs that you can find. We would also advise that the infected plot be given a heavy dressing of gas lime.

HOT WATER WASTING THROUGH EXPANSION PIPE: *Boiler.* We notice in the sketch plan that you have sent us that there is only one valve in one of the two principal main flow-pipes running in rectangular directions, and that properly enough this is fixed in the main having a very sharp rise up a hill side and from which one house is heated on the right and three houses on the left. But one throttle valve should also be fixed between the bend rising from the principal main flow and the connecting branch flow-pipe in every case; otherwise we fail to see how a satisfactory circulation of hot water can be obtained and regulated throughout your heating system. Your supply cistern is rightly fixed in a house occupying the highest level (12 feet) above the heating apparatus and more than 100 feet distant therefrom, thus showing that your 20 foot high expansion pipe obviously contains water for 12 feet above the boiler level, with the result that when the water attains to the boiling point it rushes up the 8 foot empty space of expansion pipe. Bad circulation in the 80 foot principal main-flow, and the branch flows therefrom, into three separate houses, contribute not a little to this waste of hot water through the expansion pipe. As advised at p. 436, we should recommend you to add a 6 foot length of gas tubing to your expansion pipe, making the connection with a S shaped bend with a view to minimising, if not entirely preventing, the waste of hot water in this direction. A stay should be put to the additional length of tubing to prevent its being displaced by the effect of high winds. We are afraid it would be too risky at this time of year to advise you to endeavour to give a little more rise to your level main flow-pipe, but it might, perhaps, be done in warm weather by careful and judicious leverage through the medium of a crowbar passed through a chain or stout rope taken round the pipe and formed into a loop on top, commencing as a matter of course, at the end of the main farthest from the boiler. It will be wise to defer trying this experiment until the summer, when artificial heat can be dispensed with for a short time at least.

INCRUSTATED BOILER: *T. C.* This is caused through the use of water containing much lime. If your boiler is empty, you might, by removing the pad, chip off the incrustation with an old chisel. We presume that your boiler is saddle-shaped, and if this is the case, we may say that in our experience of such boilers, from which the incrustation has been removed—or indeed whether it has been removed or not—the wrought iron plate gives way within a short period of time afterwards; it becomes burned through. However, as prevention is better than cure, we recommend the following simple remedy to soften water before use if due to temporary hardness—i.e., matter which is deposited on the water boiling. Put a little lime, such as is used by builders, in the water in a tank, and allow it to settle, when the lime (calcium oxide) will combine with the carbon, which at present is keeping the calcium or magnesium carbonate in solution as bicarbonate. Both the calcium and magnesium carbonate will be then precipitated. This solution will in time soften and reduce the incrustation on the side of boiler to a harmless powdery state. One or two pounds of dust lime tied up in a stout piece of cloth and placed in the supply cistern would serve to soften about 100 gallons of hard water, renewing the supply of lime at intervals corresponding with every 100 gallons of water put into the cistern. The "Carlton Boiler Fluid," manufactured by Walter Voss & Co., Limited, Carlton Works, Glengall Road, Millwall, London, E., is an excellent preparation for the purpose indicated above. Anti-Calcareous is another preparation for softening hard water, but it is expensive.

MARKET CHRYSANTHEMUMS: *H. R.* We should increase rather than reduce the list of sorts you name. They are all good ones, and the great advantage of growing a number of sorts is, that it gives a little more variation in the time of flowering, and certain varieties succeed best

in certain localities. Taking the November flowering white varieties, we find that some growers do not succeed with Western King, while others have it in splendid condition. "Star" is more suitable for growing as a pot-plant, and would hardly pay for cultivation merely for supplying blooms for cutting. We may add here, that although known in the market as "Star," this variety is properly named "Ivory." Niveum might be put into the December list, for it will even last into January. Among red flowers for November, Exmouth Crimson may be added, also Matthew Hodgson, and for December, Violet Lady Beaumont should be given a place. We might add many other useful sorts.

MISTLETO: *A. C. Horton.* You must not only place the seeds in the crevices of the bark, but in addition it will be necessary to protect them from birds, which otherwise would probably discover them all and remove them. Another method is to cut a notch in the bark on the under surface of a branch, and place the seed in this in such a position that the embryo of the seed will be directed towards the trunk of the tree. In your district (Kent) it should not be difficult to establish this parasite on your aged Apple trees.

MUSHROOM PESTS: *L. P. G.* Your Mushrooms are attacked apparently by two very different pests. The larger ones, which jump when touched, are no doubt from what you say one of the "springtails," or Poduridæ; the smaller ones are not the young of the others, but belong to the family of mites. They are identical with the "bulb mite," *Rhizoglyphus echinopus*, or belong to a very nearly allied species. A number of these were at work on the gills, and also two colonies in the stems, in which they had formed large holes; they are probably more injurious to the crop than the "springtails." As to the best way of destroying these creatures, it is very difficult to know what to recommend without injuring the mushroom bed. Thoroughly spraying it with a solution of paraffin emulsion, or certain other insecticides, would no doubt kill the pests, but it is uncertain what effect such a proceeding would have on the bed. The mites are still more difficult to deal with, as insecticides cannot be made to reach them inside the Mushrooms. Probably the best thing to do would be to entirely remake the bed, taking away all the old soil, &c., and scalding all brickwork, boards, &c., which the old bed has been in contact with. Thanks for 2s., which has been placed in the R.G.O.F. collecting box.

MYOSOTIS ALPESTRIS "VICTORIA": *H. R.* This variety is an improvement on the type. In habit it is more compact, and the flowers are larger.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in this issue are requested to be so good as to consult the following numbers.* **PLANTS:** *K. I. Y.* 1, Margil; 2, Blenheim Pippin; 3, Harvey's Reinette; 4, Dean's Codlin; 5, King of the Pippins.—*E. B.* Whiting Pippin.—**PLANTS:** *W. R. P.* 1, Acalypha macrophylla; 2, A. macrostachys (syn. A. masaiica of gardens); 3, A. Wilkesiana var. marginata.—*C. E. Frank.* Bulbophyllum Pechel.—*Northumbrian.* Epidendrum cochleatum, one of the oldest Epiphytall Orchids in gardens.—*A. B.* Eschynanthus splendens.—*J. D.* Dendrobium infundibulum, of no special value.—*Henry.* 1, Cotoneaster microphylla; 2, Escallonia macrantha; 3, Crataegus pyracantha; 4, Escallonia rubra var. punctata; 5, Euonymus europæus; 6, Berberis stenophylla.

PAINTING WOODWORK OF GLASS-HOUSES: *East Heris.* The wood being in the condition you have described it would be well to apply a good "primer" before painting with the best white-

lead paint. Any local painter will mix you the "primer." Or you might try the new "Lubrose" paint, which is obtainable from Mr. C. T. Druery, 11, Shaa Road, Acton, W.

PAYMENT DURING HOLIDAY ON CHRISTMAS DAY: *H.* We think that the men were entitled to payment if they were engaged and paid by the week. You had better consult a solicitor. In any case, the withholding of payment in the circumstances you describe appears to us as harsh. Are you members of the British Gardeners' Association?

POINSETTIA SPORT: *G. C.* We have seen similar light-coloured forms, and they are usually the result of defective culture.

POTATO TUBERS: *B. L.* The injury is of a mechanical nature, caused by some substance present in the soil. Such blackening and abrasion of the skin is often caused by the use of town manure containing ashes.

RHODODENDRONS AS HEDGE PLANTS, &c.: *H. B. H. M. S.* We do not remember to have ever seen the Rhododendron used as an ordinary hedge-plant. There are so many other subjects better adapted for the purpose. If Rhododendrons were clipped yearly, all, or nearly all, the flower-bearing shoots would be cut away. But if your object is simply to make a dividing line and to allow the plants to spread practically as they like, then the Rhododendrons would answer. Respecting specimen plants, these should, if possible, be obtained on their own roots, and encouraged to form a good foundation in the early stages of development. Assuming that you start with shapely plants, it will be an easy matter to train them into handsome bushes provided the soil contains no lime, but is cool, well-drained, and in a position exposed to sunshine. Beyond removing weakly shoots and keeping the centre of the plants free, little or no pruning is required. If you want to raise young plants from bushes already in your possession, you ought to layer a number of shoots at about the latter part of August or during September. Some of the layers may be severed from the parent plants in 12 months after layering, and if they attain a height of 10 inches or more without showing signs of producing side-shoots they should—if bush plants are required—be cut back, or the terminal bud taken out with the finger and thumb. The plants require all the sunlight possible, in order that the wood may become properly ripened. Standards are formed by running up strong shoots until the desired height is reached, all side-growths being cut away, so that the stems may become straight and clean. When the requisite height is reached they are allowed to produce side-shoots, and in some cases the point is removed to induce the formation of such shoots. Rhododendrons being surface-rooting shrubs, a mulch of leaf-mould or other suitable material in times of drought, and soakings of water once each week are of inestimable benefit. All seed-vessels should be removed immediately after the flowering period, at which time a good watering will greatly assist the plants to make vigorous growth.

RUNNER BEAN "FIREFLY": *G. C.* This was exhibited last autumn at one of the Royal Horticultural Society meetings, by Messrs. Sutton & Sons, Reading.

SEED CLEANING: *C. S. & Co.* The pods appear to be those of a Medicago allied to *M. falcata*.

SOLANUM CAPSICASTRUM: *H. R.* This plant may be readily raised from seed, but it is usual to propagate from cuttings, selecting the freest fruiting plants from which to take the cuttings.

STRAWBERRIES: *H. R.* The plants can be layered straight into their fruiting-pots, and this is a practice recommended by many growers of this fruit, but we prefer the use of small pots at the start, as the soil is likely to become sour in the larger pots before they are filled with roots.

COMMUNICATIONS RECEIVED.—*B. Cromwell*—*T. W. Birkinshaw*—*J. H. F. W.*, New Jersey (Your request for application form has been forwarded to the secretary of the British Gardeners' Association)—*F. M.*—*B. C.*—*H. P.*—*E. H. R.*—*Iretton Gardens*—*R. F.*—*Mrs. A. W.*—*H. W. J.*—*O. B.*—*C. Scrase*—*Dickins*—*W. Watson*—*A. P.*—*W. M.*—*J. Wright*—*Mrs. S. E.*—*Redbreast*—*W. P.*—*Miss M. P.*—*R. A.*—*J. C.*—*C. A. P.*—*H. B.*—*J. B. L.*—*H. S. K.*—*R. A.*, Cap. d'Antibes—*Louis Gentil* (many thanks)—*W. W. P.*—*A. Adams*—*A. C. B.*—

THE Gardeners' Chronicle

No. 1,046.—SATURDAY, January 12, 1907.

CONTENTS.

Aloes	26	Obituary—	
Alpine garden—		Byers, John	32
Gentiana acaulis	21	Cater, R. B.	32
Apple and Pear Culture		Odontoglossums, seed-	
in Ireland	19	ling	26, 32
Begonia Gloire de Lor-		Orchid notes and glean-	
raine seedlings	29	ings—	
Books, notices of—		Cypripedium insigne	
Botanical Magazine	25	"Clare Dow"	21
Kew Bulletin	25	Miltonia Endressii	21
Landschaftliche Gar-		White Cattleyas	21
tengealtung	21	Parks and public	
Revue Horticole	25	gardens	28
Cedars at Kew	25	Plant-nomenclature	17
Ceropegias in cultiva-		Plant notes—	
tion	20	Plumbago rosea	19
Churchill, G. C., the		Primula Palinuri	19
late	25	Plant novelties in 1906...	27
Colonial correspondence		Plants, new or note-	
Florida garden in No-		worthy—	
vember and December		Pycnostachys Dawei	18
Foreign correspondence—		Potato Year-Book	25
Gerbera Jamesoni	18	Rats and pheasants in	
Gooseberry-mildew, the		the garden	28
American	24, 29	Sangwin, W., retire-	
International Congress		ment of... ..	25
of Horticulture	26	Societies—	
Jasminum officinale,		Linnean	31
fruits of... ..	28	Manchester Orchid	31
New notes—		Royal Horticultural	30
Pinus canariensis as a		Violets, the culture of... ..	21
bedding plant	26	Week's work, the—	
Law note—		Flower garden, the	22
Legislation against		Fruits under glass	22
plant diseases	29	Hardy fruit garden, the	23
Liriodendron Tulipi-		Kitchen garden, the	23
ferum, with rose-		Orchid houses, the	22
tinted flowers	28	Parks and gardens	23
Megacarpaea armena	28	Plants under glass	22

ILLUSTRATIONS.

Acacia Caffra growing wild in the Transvaal	20
Begonia Gloire de Lorraine, seedling plants of	29
Dombeia rotundifolia flowering near Pretoria	21
Flower bed at Kew Gardens planted with succulents	
and Pinus canariensis (Supplementary Illustration).	
Habitat of Primula Palinuri	19
Odontoglossum Aliceæ	26
Primula Palinuri	18
Violets in pots and in frames	27, 28

NAMING PLANTS.

THE nomenclature of plants is, as all who have to deal with the subject recognise, in an unsatisfactory condition, and, whilst it causes experts unnecessary trouble and inconvenience, it gives occasion to outsiders to complain vehemently, or to indulge in more or less mild satire. Linnæus was the first in modern, or comparatively modern, times to endeavour to set matters straight. To him we owe the binominal nomenclature; to him we are indebted for the first reasonable code in the *Philosophia Botanica*. Of course, the vast advances that have been made since his time have rendered some additions and modifications desirable, but the more nearly we conform to the principles laid down by the great Swede, the better for us all. There is a general agreement to accept the year 1753 as the starting point of botanical nomenclature. In that year the first edition of the *Spéciés Plantarum* was published. It is not necessary here to discuss all the reasons for selecting that date, sufficient to say it is in every way the most convenient. After Linnæus, Auguste Pyramus de Candolle introduced amendments and additions; Lindley did the same. Alphonse de Candolle, the son of Auguste, drew up the famous "Lois" and submitted them for modification and adoption to a Congress of Botanists, held in Paris in 1867. These have been followed, with comparatively few exceptions, up to the present time. Some of the American botanists, breaking away from the practice of their revered leader, Asa Gray, have set up rules of their own. Dr. Otto

Kunze has done the same thing and created synonyms by the thousand. It would be tiresome, and indeed unnecessary, here to discuss these proposed amendments. Suffice it to say that at a Congress of Botanists, held in Vienna in 1905, and attended by hundreds of botanists of all civilised nations, the "Lois" of Alphonse de Candolle were submitted, paragraph by paragraph, to keen scrutiny. Some were retained, others modified, many added. The results, edited by Mr. John Briquet, which we take to be morally binding on all botanists, are published in French, and in German, and in English under the English title of "International Rules of Botanical Nomenclature." They may be had from Messrs. Williams and Norgate, or any firm of foreign booksellers.

It is quite unnecessary for us to discuss these rules in their entirety. Some of them affect horticulturists, and to these alone we desire to call attention.

The code, if we may so call it, is divided into (1) "articles," in which the principles are embodied and which are, of course, the most important; (2) "rules," which are based on the foregoing principles; and (3) "recommendations," which allow greater latitude to individual botanists.

We now set forth those articles, rules, and recommendations which are of special interest to horticulturists. Separated from their context, they appear disjointed, but it is not necessary here to allude to those paragraphs which concern descriptive botanists only. We have here and there made our own comments in brackets.

Art. 10.—Every individual plant belongs to a *species*, every species to a *genus*, every genus to a *family* [in this country family and order have been used synonymously, but this will no longer be the case], every family to an *order* [thus corresponding to what we have been accustomed to call cohort], every order to a *class*, every class to a *division*.

Art. 11.—In many species we distinguish *varieties* and *forms*, and in some cultivated species, modifications are still more numerous, in many genera sections, in many families tribes.

Art. 12.—... If circumstances require us to distinguish a greater number of intermediate groups, it is easy by putting the syllable "sub" before the name of a group to form sub-divisions of that group. In this way sub-family (subfamilia) designates a group between a family and a tribe; sub-tribe (subtribus) a group between a family and a genus. The arrangement of subordinate groups may thus be carried, for wild plants only, to twenty-one degrees, of which we give the English names in the following order:—

Vegetable kingdom.
Division.
Sub-division.
Class.
Sub-class.
Order.
Sub-order.
Family.
Sub-family.
Tribe.
Sub-tribe.
Genus.
Sub-genus.
Section.
Sub-section.
Species.
Sub-species.
Variety.
Sub-variety.
Form.
Individual.

If this list of groups is insufficient it can be augmented by the intercalation of supplementary groups so long as these do not introduce confusion or error. (Ex.—*Series* and *sub-series* are groups which can be intercalated between sub-section and species.)

Art. 13.—The definition of each of these names of groups varies up to a certain point according to individual opinion and the state of science, but their relative order, sanctioned by custom, must not be altered. No classification is admissible which contains such alterations. Examples of inadmissible alterations are a form divided into varieties, a species containing genera, a genus containing families or tribes. [Schedule framers should carefully note this article. At present they are frequent transgressors.]

Art. 16.—The designation of a group by one or several names is not for the purpose of describing the characters or the history of the group, but that we may be understood when we wish to speak [or write] of it.

Art. 21 and 22.—Families (familie) are designated by the name of one of their genera or ancient generic names with the ending *aceæ*—thus Rosaceæ from Rosa, &c.

There are a few exceptions (Art. 22) sanctioned by long usage—Palmeæ (better Palmaceæ), Gramineæ, Crucifereæ, Leguminosæ, Guttifereæ, Umbellifereæ, Labiateæ, Compositæ. [It would have been better to have followed Lindley, and by various means to have made all groups of equal family-rank end in *aceæ*.]

Art. 23 (condensed).—Names of sub-families end in *oideæ*, names of tribes end in *ee*, and of sub-tribes in *ina*.

Recommendation XII.—When it is required to express a sub-generic or sectional name, together with the name of the genus and the name of the species, the name of the section is put between the others in a parenthesis, e.g., *Astragalus* (*Cycloglottis*) *contortuplicatus*.

Recommendation X.—Specific names begin with a small letter, except those which are taken from names of persons (substantives or adjectives), or those which are taken from generic names (substantives or adjectives). Examples: *Ficus indica*, *Circaea lutetiana*, *Brassica Napus*, *Lythrum Hyssopifolia*, *Aster novi belgii*, *Malva Tournefortiana*, *Phyteuma Halleri*.

Recommendation XI.—When a specific name is taken from the name of a man, it is formed in the following way:—

(a) When the name ends in a vowel the letter *i* is added (thus Glazioui from Glaziou; Bureaui from Bureau), except when the names end in *a*, when *e* is added (thus Balansæ from Balansa). [Confusion would arise in some cases, where it would not be possible to distinguish between a male and a female writer; thus Trianæ might apply equally well to a male or a female.]

(b) When the name ends in a consonant, the letters *ii* are added (thus Magnsii from Magnus, Ramondii from Ramond), except when the words end in *er*, when *i* is added, thus Kernerii. [Why this exception should be made is not clear.]

(c) Syllables which are not modified by these endings retain their original spelling even in the case of the consonants *k* or *w*, or groupings of vowels, which are not used in classic Latin. Letters, foreign to the Latin of botanists, should be transcribed, and diacritic signs suppressed. The German *ä*, *ö*, *ü* become *æ*, *œ*, *ue*; the French *é*, *è*, and *ê* become in general *e*.

(d) When specific names, taken from the name of a person, have an adjectival form, a similar plan is adopted. (*Geranium Robertianum*, *Carex Halleriana*, *Ranunculus Boreauanus*, &c.)

Recommendation XII.—The same applies to the names of women. These are written in the feminine when they have a substantival form. (Example: *Cypripedium Hookeræ*, *Rosa Beatrix*, &c.)

Recommendation XIII.—In the formation of specific names composed of two separate roots and taken from Latin or Greek, the vowel placed between the two roots becomes a connecting vowel—in Latin *i*, in Greek *o*; thus we write *menthifolia*, *salviifolia*, not *menthæfolia*, *salviæfolia*. When the second root begins with a vowel and euphony demands it, the connecting vowel is eliminated (e.g., *Calliantha*, *lepidantha*). The connecting *æ* is legitimate only when etymology demands [it] (e.g., *Caricæformis* from *Carica* may be retained along with *Cariciformis* from *Carex*).

Art. 30.—Forms and half-breeds among cultivated plants should receive fancy names in common language as different as possible from the Latin names of the species or varieties. When they can be traced back to a species or sub-species or a botanical variety this is indicated by a succession of names. (Example: *Pelargonium zonale*, Mrs. Pollock.)

Art. 31.—Hybrids between species of the same genus, or presumably so, are designated by a formula, and whenever it seems useful or necessary by a name. The formula consists of the names or specific epithets of the two parents in alphabetical order and connected by the sign \times . When the hybrid is of known experimental origin the formula may be made more precise by the addition of the signs.

Art. 32.—Intergeneric hybrids (between species of different genera) or presumably such, are also designated by a formula, and when it seems useful or necessary by a name. The hybrid is associated with the one of the two genera which precedes the other in alphabetical order. The name is preceded by the sign \times . (Example: \times *Ammophila balsica* = *Ammophila arenaria* \times *Calamagrostis epigeios*.) [In such a case the combination of the two generic names preceded by the sign of hybridity would seem preferable—thus \times *Calamophila*—after the pattern of \times *Philageria* or \times *Urocharis*.]

Art. 35.— . . . Communication of new names at a public meeting or the placing of names in collections or gardens open to the public do not constitute publication. [This renders invalid names given at an exhibition.]

Art. 36.—On and after January 1, 1908, the publication of names of new groups will be valid only when they are accompanied by a Latin diagnosis.

Art. 42.—When a manuscript name has been published and referred to its author, the name of the person who published it should be appended to the citation. The same rule should be followed for names of garden origin when they are cited as "Hort." (Example: *Capparis lasiantha*, R.Br., *ex*, or, *apud* D.C.; *Streptanthus heterophyllus*, Nuttall in Torrey and Gray; *Gesnera Donckelaarii* Hort., *ex*, or, *apud*, Hook, *Bot. Mag.*, tab. 5,070.

Recommendation XXXII.—Botanists should use in modern languages Latin scientific names, or those immediately derived from them, preferably to names of another kind or origin. They should avoid the use of the latter unless these are very clear and in common use.

Recommendation XXXIII.—Every friend of science should oppose the introduction into a modern language of names of plants which are not already there, unless they are derived from Latin botanical names by means of some slight alteration.

The rules now adopted will continue in force till the next Botanical Congress to be held in Brussels some years hence, when further modifications may be made if deemed necessary, and when the questions relating to the naming of cryptogamous and of fossil plants will be taken into consideration.

NEW OR NOTEWORTHY PLANTS.

PYCNOSTACHYS DAWEI.

N. E. BROWN (N. SP.).

This is a handsome new Labiate which has lately flowered in the T range at Kew Gardens. It was discovered in Uganda by Mr. A. Whyte, in 1898, and was afterwards collected by Mr. M. T. Dawe, who sent seeds of it to Kew, in 1905, from which the plants now in flower were raised. It is a stout herb, 4 to 6 feet high, with a loosely-branched pyramidal habit. The stems are square, puberulous, with opposite narrowly lanceolate leaves, 5 to 12 inches long, $\frac{1}{2}$ to $1\frac{1}{2}$ inches broad, tapering into a long, acute point at the apex, and narrowed into the petiole at the base, serrate on the margins. Each branch terminates in a spike, $1\frac{1}{2}$ to 5 inches long, and $1\frac{1}{2}$ inches in diameter, of cobalt-blue flowers. The spikes are very densely many-flowered, and their unopened flowers are

appear to be allied to *P. affinis*, Gürke, which I have not seen. The genus *Pycnostachys* may be distinguished from *Coleus* and *Plectranthus* by its needle-like calyx-teeth and denser spikes. N. E. Brown.

FOREIGN CORRESPONDENCE.

GERBERA JAMESONI.

In the issue of the *Gardeners' Chronicle* for December 22 there is an article upon *Gerbera Jamesoni*. This handsome plant interests me very much, and I have cultivated it for three years. Last year I obtained good results, and so exhibited an important lot at the Chrysanthemum exhibition held in November in Paris. Your correspondent, Mr. Burtt-Davy, of Pretoria, says that during the last three dry years it has been rather unusual to find *Gerbera* produce seed on either wild or cultivated plants, but that this year his plants are bearing more fertile

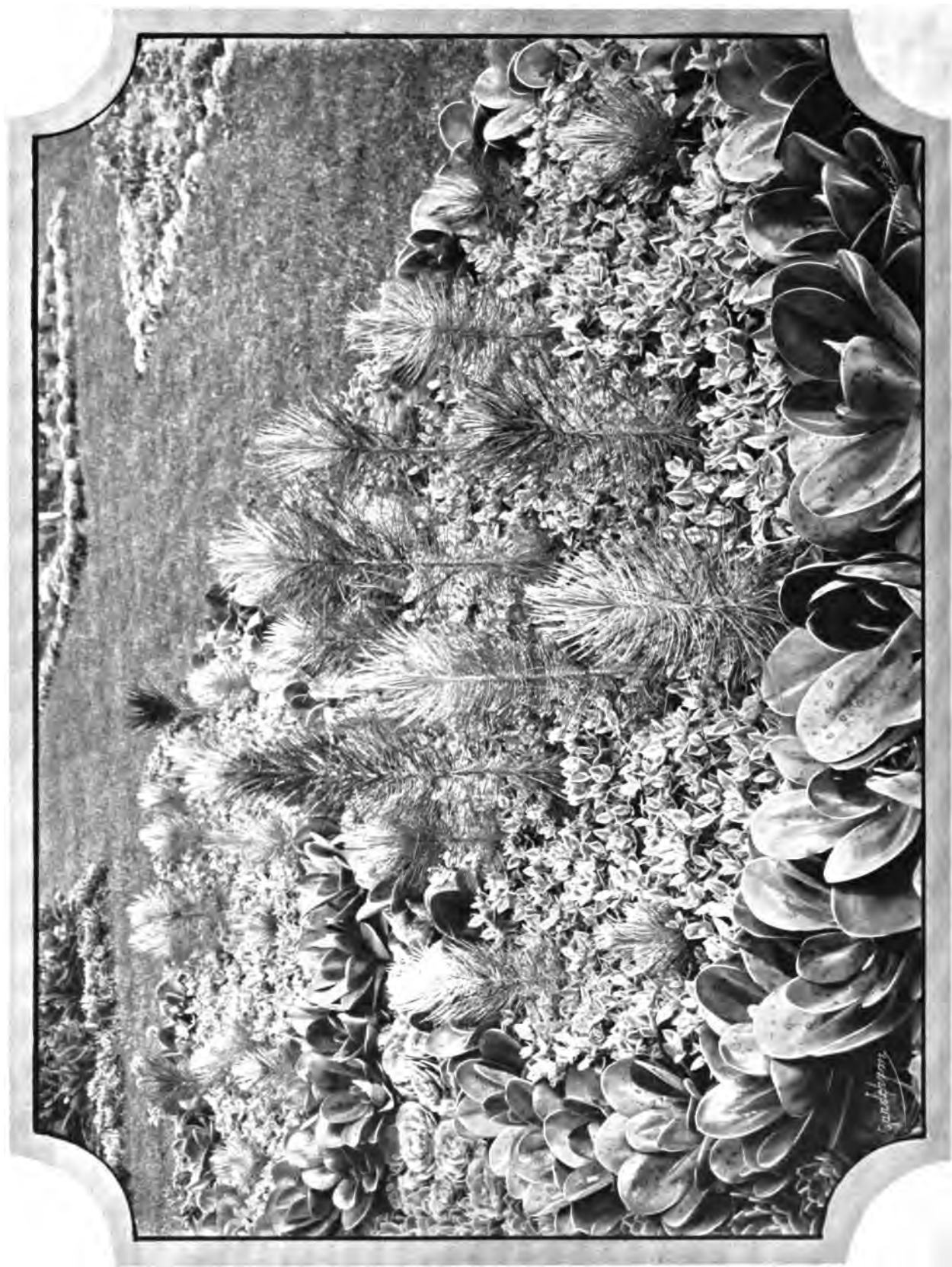


FIG. II.—*PRIMULA PALINURI*, NATIVE OF MOUNTAIN SHOWN AT FIG. 12: FLOWERS YELLOW. (From *Botanical Magazine*.)

more or less concealed by the incurving, narrowly lanceolate, acuminate bracts, which, as well as the long needle-like calyx-teeth, are ciliate with long, spreading hairs. The corolla is about $\frac{3}{8}$ -inch long, and the tube is very slender and straight at the basal half, then bent at a right-angle, dilated and compressed, with the margins of the mouth inrolled; the upper lip is equally 4-lobed, and of a darker blue than the rest of the corolla, with the two middle lobes very concave; the lower lip is compressed, boat-shaped, with the obtuse apex abruptly inflexed. The species would

seed, perhaps on account of the greater rainfall, or perhaps because the plants are older. I believe that both explanations are wrong. Here in my garden I gather as many seeds as I wish, and this year I shall be able to sell the seeds by the million. I have remarked that in moist and rainy weather the production of seeds is very much smaller than in dry and warm weather. But I have gathered, and gather every day, numerous seeds on very young plants. It is usual here, in the Riviera, to gather seeds upon plants seven or eight months old. I have now in my greenhouses thirteen plants from seeds sown on June 23, 1906, every one of which has a flower-bud, and one plant that has now one flower-bud, one open flower, 6 centimetres (2½ inches) in diameter, and one stem 15 centimetres (6 inches) in length. I hope to obtain seeds of this plant in two months' time. I may write you the result if it would be interesting. R. Adnet, La Roseraie, Cap d'Antibes, December 23, 1906.

* *Pycnostachys Dawei*, N. E. Brown. Herba 4-6 ped. alta, laxa ramosa. Rami tetragoni puberuli. Folia 12-30 cm. longa, 1.2-4 cm. lata, petiolata, anguste lanceolata utrinque longe angustata, acutissima, serrata, utrinque tenuiter puberula. Spicæ terminales, dense multifloræ, 8-12.5 cm. longæ, 3.5 cm. diam. Bracteæ 9-11 mm. longæ, anguste spatulato-lanceolatæ, acuminatæ, incurvæ, longe ciliatæ. Calycis tubus parvus, glaber, inter dentes in lobulas minutas ciliolatas productus; dentes 6 (fructu usque ad 10 mm. longæ, aciculares, basi longe ciliatæ). Corollæ lobus, tubus basi gracilis, superne abrupte compresso-inflatus et deflexus, labium superius equaliter 4-lobum; labium inferius compresso-naviculare, apice abrupte inflexum.



SEEDLING PLANTS OF *PINUS CANARIENSIS* USED FOR BEDDING TOGETHER
WITH SUCCULENT PLANTS.

Photo by E. J. Wallis.

PLANT NOTES.

PRIMULA PALINURI.

THERE is a peculiar interest attaching to plants which are to all appearance destined to speedy extinction. One such plant is that mentioned in the following note. It is a native of the promontory of Palinuri, in Southern Italy, and is not found elsewhere. The dry, rocky character of the spot on which it grows is well shown in the accompanying reproduction from a photograph (fig. 12), kindly furnished by Mr. Sprenger, of Naples. It is curious to see how similar are (or appear to be) the conditions under which *P. Palinuri* grows in Italy, and *P. sinensis* near Ichang, in Central China, as narrated and figured in our columns by Dr. Henry and Mr. E. H. Wilson.

If unscrupulous botanists and traders lay themselves open occasionally to the charge of exterminating rarities, there is something to be said on the other side, for certain plants which grow in a single locality, and which are approaching extinction, are preserved by the cultivator. So it is with *Primula Palinuri*, which

during July. The East Indies is the home of two species—the white flowered *P. zeylanica* and *P. rosea*, a species which is now in season and deserves extended culture. It was introduced so far back as 1777, but whatever welcome it met with then it is now a comparatively rare plant. If stove heat can be given it, there are no insurmountable difficulties attending its culture. Care in watering is the chief essential, especially at this season. The bright rosy flowers are borne in long terminal spikes, and with care its flowering period can be prolonged for fully 10 weeks. While in flower the plants should be given a light, dry position, and the syringe must not be allowed near them. After flowering the plants should be kept "on the dry side" (but not absolutely dry) for four or five weeks. After this rest they should be lightly pruned and started into growth, using the syringe freely and the watering-pot but sparingly. When growth commences, the plants should be shaken out and re-potted in a compost of sound loam and leaf soil, with plenty of grit to keep it porous, pressing it firmly, and using well-crooked pots of moderate size—as a rule, 5-inch to 7-inch pots will

APPLE AND PEAR CULTURE
IN CO. CORK.

Our Apple trees are principally pyramid-trained, and comprise over 50 varieties. The fruits last season were larger, better-coloured, and superior in every way to those of previous seasons.

The varieties Beauty of Bath and Lady Sudeley are the first to be harvested, being ready about the last week in August, and these are succeeded by Worcester Pearmain, Gravenstein, and Devonshire Quarrenden in September and early October. Cox's Pomona, which was ready for the dessert table at the latter end of October, was very finely coloured. These are closely followed by Maltster and Blenheim Pippin; this latter generally furnishes a long supply of dessert Apples. Among kitchen varieties Lord Grosvenor and Ecklinville Seedling are both admirable for use in August and September, after which period the varieties Warner's King (of which the heaviest fruits this year weighed 18 ounces), Tower of Glamis, and nicely-coloured specimens of The Queen afford both culinary and dessert fruits. Then Golden Noble, which has finished well this season (the heaviest fruits turned the scale at 12 ounces), and Stirling Castle suffice for culinary purposes until the end of November. Lady Henniker is an Apple which does remarkably well here, some of the fruits weighing as much as 12 ounces, and it is in season for culinary and dessert purposes in December and January. Lane's Prince Albert is an excellent Apple in season in November, along with another good Apple, Waltham Abbey Seedling. Tyler's Kernel promises to be a most useful variety. Roundway's Magnum Bonum, Charles Ross, and Peasgood's Nonsuch are all varieties which succeed well here.

Our culinary varieties for February are Bramley's Seedling and Newton Wonder. These are splendid croppers and the fruits are of first quality. Some fruits of Bramley's Seedling weighed 12 ounces. Northern Greening and Dutch Mignonne, with Sturmer Pippin and Allen's Everlasting, furnish a supply well into May.

The above is a summary of the principal, tried varieties. Numerous others, which have been planted here during the last two or three years, have not been sufficiently tested for me to pronounce an opinion upon.

DESSERT PEARS.

The following varieties are generally successful in this district:—Jargonelle, Beurré Giffard, and Williams' Bon Chretien (trees of which we have planted on S.W. and E. aspects) almost invariably furnish good crops, both on wall and on pyramid-trained trees. Marie Louise and Duchesse d'Angoulême furnish a good supply of fruits from mid-October well into November, in which month Beurré Diel is also in excellent condition. Another good medium-sized, well-flavoured, juicy Pear is Comte de Lamy. Doyenné du Comice, Doyenné Boussoch, and Pitmaston Duchess furnish well-coloured fruits of excellent flavour. The heaviest fruits of Doyenné du Comice this year weighed just over 12 ounces. These, with the inclusion of a few other kinds, such as Josephine de Malines, Passe Crassane, and Winter Nellis, carry the supply well on into the new year. Easter Beurré, I regret to say, is not equally successful here.

For stewing purposes we find nothing to surpass Catillac and Vicar of Winkfield. A wall in these gardens about 200 yards in length is entirely utilised for the culture of culinary varieties of Pears. C. Price, *Mitchelstown Castle Gardens*.



[Photo by Mr. Sprenger.]

FIG. 12.—NATIVE AND EXCLUSIVE HABITAT OF PRIMULA PALINURI, IN SOUTHERN ITALY.

may be found in botanic gardens, and is included in the *Kew Hand-list*. The figure of the leaf and flower here given are copied from the *Bot. Mag.*, t. 3414. The leaves are covered with a white meal, and the flowers are of a yellow colour.

PLUMBAGO ROSEA.

IN point of numbers the genus *Plumbago* is not noteworthy, but its distribution is remarkable. The blue *P. capensis*, from the Cape of Good Hope, is well known and variously grown in most gardens as a greenhouse shrub or as a pillar plant for summer bedding. *P. Larpentæ* hails from China. This is a hardy perennial; it has the slender habit of the genus, and bears heads of violet flowers. Siberia supplies an annual species having white flowers. *P. europæa* originated in that vast district vaguely termed "South Europe." It is a hardy herbaceous perennial, bearing in September heads of bluish flowers on 8 foot high branches. Mexico gives us a dwarf shrubby species, *P. pulchella*, requiring tropical treatment. The West Indies has its representative in *P. scandens*, a climbing species, known as Devil's Herb, or Toothwort. It bears loose spikes of white flowers

be ample. While growth is in progress *Plumbago rosea* requires a plentiful supply of water. During June, July, and August the plants may with advantage be transferred to a cool house, and during this period and onwards great discretion must be exercised in watering. Early in September bring the plants into the hot-house, and give occasional doses of weak manure water until the first flowers expand. The variety *coccinea* has somewhat larger and brighter flowers, and should receive the same culture as the type. Propagation may be effected by division in the spring, or half-ripe cuttings will root freely in moderate bottom heat. A. C. B.

PLANT PORTRAITS.

LOBELIA KATHLEEN MALLARD.—*Garden Flora*, December 1, tab. 1,567. A double-flowered variety of a deep blue colour.

ROSE QUEEN OF SPAIN.—*Garden*, December 22, 1906. H.T., raised by Messrs. Bide & Sons, Farnham. A cross between Antoine Rivière and some unknown variety. Form globular, conical in centre; outer petals yellowish, inner ones flesh-coloured.

RUBUS PLATYPHYLLUS.—*Revue Horticole*, December 16. A Caucasian species with long, Raspberry-like fruits, highly recommended for jam-making.

THE CEROPEGIAS IN CULTIVATION.

Mr. N. E. BROWN's article, which appeared recently (p. 383, vol. xxxix.), upon the remarkable *Ceropegia hybrida* that originated in the Botanic Gardens at Leiden, having drawn attention to this genus, may I add a few words regarding the species at present in cultivation?

It goes far to prove the neglect in which these singular plants have fallen that *C. similis* has been grown in England for twenty years as *C. Thwaitesii* without the error having been detected. The true *C. Thwaitesii* is a far more decorative plant, judging from the figure in the *Botanical Magazine* (t. 4,758), published in the January number for 1854, and drawn from a plant flowered at Kew, raised from seed sent from Ceylon in 1851 by Mr. Thwaites himself. This plant is now apparently lost to cultivation, and should this note meet the eye of any cultivator in Ceylon possessing it or the two other Cey-

(Gold Coast), *C. Gardneri* (Ceylon), *C. gemmifera* (Togoland), *C. hybrida* × (see p. 383 ante), *C. lucida* (Himalayan regions), *C. Lugardiae* (Mozambique district), *C. Monteiroae* (Delagoa Bay), *C. radicans* (S. Africa), *C. rupicola* (Arabia), *C. Sandersoni* (Natal), *C. similis* (Ceylon) (?), *C. Stapeliiformis* (S. Africa), *C. Woodii* (Natal).

With three exceptions, these are all in my collection. My friend, Mr. Medley-Wood, grows two or three new species in the Botanic Gardens at Durban, but they are apparently difficult or slow of propagation, for he has not yet been able to send them to us. Their introduction is much desired.

In addition to the above, the following species were recently cultivated at Kew, but appear to be now lost:—

C. Bowkeri (S. Africa), *C. Decaisneana* (India), *C. multiflora*, and its variety *latifolia* (S. Africa), *C. perforata* (New Guinea, this species was introduced by Messrs. Sander in 1899), *C.*

This is interesting, as disposing of the supposition that a *Ceropegia* had been found in the New World. *Walter Ledger, 5, Wilton Road, Wimbledon.*

COLONIAL CORRESPONDENCE.

KENNEDYA PROSTRATA.

I AM forwarding to you a photograph of a native plant, a variety of which was recently referred to in a paragraph in the *Gardeners' Chronicle* as a pillar plant. I do not know what characteristics the named variety may have, but the form of *Kennedya prostrata* found in West Australia is a finer plant than the same species in the S.E. of Australia, being larger in its various parts, with the flowers of a brighter scarlet. The plant shown in the photograph was growing on the spot eight years ago when the house was built, on ground that had been a "paddock" or park-like enclosure, with *Banksias*, *Acacias*, *Nuytsia*, and other native species scattered over it. As it grew at the foot of a verandah-post it was tied up as the new growth appeared during the winter. By the time the main branches had finished their growth, the top of the pillar had been reached, after which secondary branches were produced. The plant is always prostrate in a state of nature, but suffers no injury from being trained up in full exposure to light and air. The up-turned tips of the branches appear to indicate the degree of elevation of the growing point in its progress over the ground in its natural prostrate habit, and if that is the correct explanation, it is interesting as showing the retention of the upward curve, although the position of the branches in relation to the ground has been altered. *Alex. Morrison, 149, Brown Street, Perth, W.A.*

[The photograph would not reproduce well.—Ed.]

PRETORIA.

HERewith I send two photographs of Transvaal trees. No. 1 (see fig. 13) is a fine specimen of *Acacia caffra* in full flower, overshadowing a native kraal at the farm Barraan's-Poort, near Pretoria, taken on September 30, 1906. The flowers are creamy-white, and borne in spikes about 3 inches in length. This is the finest specimen I have seen; it is one of the most abundant species around Pretoria, but usually occurs in bush form, perhaps because all the trees have been cut out for fuel and are only allowed to sucker to a limited size before being again cut out.

No. 2 (see fig. 14) shows two specimens of *Dombeya rotundifolia* in full bloom on a kopje at The Willows, near Pretoria. It is one of our most common kopje trees, and in early spring (August and September) produces a dense mass of white blossom before any leaves appear, as is indicated in the photograph. Those readers of the *Gardeners' Chronicle* who may have visited South Africa with the British Association will probably remember having seen it. When in full flower it reminds one not a little of an overgrown Pear tree; the Dutch name for it is Drall-pyr.

We are enjoying the best spring rains known for many years, so that there is now little fear of bad crops. There will be a great scourge of locusts, but we hope that our locust-officers will succeed in destroying the insects to a great extent before they can reach the flying stage. The cool, cloudy weather favours the growth of weeds, and the soil is too wet to allow us to hoe them out. My garden is a mass of *Cosmos* seedlings from last year's crop; two years ago it was bare veldt! Pretoria is gay with *Roses* just now, but there will be no *Rose* show this year owing to the financial depression. The golden blossoms of the Silky Oaks (*Grevillea robusta*) are also quite conspicuous in our gardens. *Jos. Burt-Davy, Pretoria, Transvaal, October 14, 1906.*



[Photo by J. Burt-Davy.]

FIG. 13.—ACACIA CAFFRA GROWING WILD BESIDE NATIVE KRAAL, BARRAAN'S-POORT, NEAR PRETORIA, TRANSVAAL.

lonese species—*C. biflora* and *C. Walkeriae*—their introduction would be greatly appreciated.

There are about 160 species of *Ceropegias* known to science, all confined to the Old World. In Africa they extend from Abyssinia to the Cape, including the islands of Madagascar, Zanzibar, and the Canaries. In Asia, they grow from Arabia to India, Ceylon, Java, New Guinea to the Philippines, and through the Himalayan regions to China, where Mr. E. H. Wilson recently discovered two new species, but these are as yet only in the form of dried specimens at the Kew Herbarium.

In spite of the large number known, and after some years of correspondence on my part, I have only succeeded in tracing the following species as being in cultivation in Europe:—

C. africana (S. Africa), *C. Barklyi* (S. Africa), *C. calcarata* (Mozambique district), *C. Cumingiana* (Philippines), *C. debilis* (Nyassaland), *C. dichotoma* (Canaries), *C. elegans* (India), *C. fusca* (Las Palmas, Canaries), *C. fusiformis*

Rendallii (Transvaal), and *C. Sororia* (S. Africa).

If any of these are in English private gardens or elsewhere, I am sure they would be acceptable at Kew.

In conclusion, may I point out an error which has crept into the *Index Kewensis* with regard to a plant therein specifically named *Ceropegia nitida*? It was originally described under that name in the *Encyclopédie Méthodique* (1811), Poiret's supplement to the botanical section, vol. ii., p. 178, from the specimen in the Desfontaines herbarium. A correspondence with our Consul at St. Domingo, and with the Botanic Gardens at Paris and Florence, who possess portions of the herbarium Desfontaines, proved fruitless, and it was quite by chance that I alighted upon Decaisne's *Etude sur quelques genre et espèces de la famille des Asclepiadiées* in the *Annales des Sciences Naturelles* (Mai-Juin, 1838), in which it is given as a synonym of *Marsdenia nitida*, there described.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM INSIGNE "CLARE DOW."

A FLOWER of this exceedingly pretty variety is sent me by W. Millie Dow, Esq., Kirkcaldy, who takes special interest in varieties of *C. insigne*. It flowered out of a small lot of the "montanum" importation, and, like others of that class, has the features of *C. nitens*, and its fine substance and effective colouring. The dorsal sepal, which is $2\frac{1}{4}$ inches high and nearly as much in width, is apple-green on the basal two-thirds and pure white above, with seven or eight irregularly-placed rows of large chocolate-purple blotches, the upper blotch on the three central rows being on the white ground. The petals, when extended, are nearly 6 inches from tip to tip, each being 1 inch wide; yellowish tinged and veined with purple, except the tips, the medium line being darkest, and some dark spots displayed on the lower half.

quently imported since, it has been always in very small quantities. J. O'B.

WHITE CATTLEYAS.

In the last number of the *Journal de la Société Nationale d'Horticulture*, M. Maron relates his experiences. He crossed in 1902 a pure form of *Cattleya El Dorado alba*, having pure white segments, the throat of the lip alone being yellow with a pure white form of *Lælia Perrini alba*. When the crossed seedlings flowered the blooms were all rose-coloured!

M. Bert obtained a different result. He crossed a white *Cattleya Mossiae* with a white variety having a yellow throat. The result was a plant bearing pure white flowers. It is to be desired that these crossed plants should be self-fertilised; the results would show which characters are "dominant" and which "recessive," and then if the Mendelian hypothesis be borne out it will be possible for breeders to obtain results with a measure of certainty now unobtainable.



[Photo by J. Burtt Davy.]

FIG. 14.—DOMBEYA ROTUNDIFOLIA IN FULL FLOWER ON A KOPJE, "THE WILLOWS," PRETORIA.

The lower sepals are of large size, pale green with spotted purple lines. Lip large, pale yellow, tinged with purple. Staminode broad, yellow.

MILTONIA ENDRESII.

This pretty little ally of *M. vexillaria* is again in flower in the collection of R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), where so many pretty and singular plants find a congenial home. Although *M. vexillaria* is quite a common plant in gardens, the Costa Rican, *M. Endresii*, is but rarely met with. The delicate sprays of flowers are shaped like those of *M. vexillaria* except in the panduriform outline of the lip. They are white, with a faint rose line at the basis of the sepals and petals, and with two blotches of light purple, one on each side of the bright yellow crest. Although first discovered by Warszewicz on the Cordillera of Veragua in 1849, it was not until Endres re-discovered it in 1873 that a few plants were got home alive, and, although fre-

THE ALPINE GARDEN.

GENTIANA ACAULIS.

THE stemless Gentian is one of the most prized of low-growing perennial flowering plants, and, as such, is worthy of more than ordinary consideration at the hands of the gardener. The lovely species does not succeed in all soils and localities, and I believe it is stated that in some places the plant will not flower at all. To any such statement as this the words "if allowed to shift for itself" would appear an almost necessary qualification. In some places the plant continues to grow and spread, but the flowering is extremely sparse, or even unknown. Such conditions obtain where the soil is either of an extremely dry and sandy nature, or in gardens with a heavy or retentive soil over a lias or clay sub-soil. This Gentian, whilst apparently disliking low situations where a free circulation of air is

not possible, has an unmistakable fondness for the fullest light and air that can be given it. A fully exposed and sunny position is the best, while ultimate success will depend not a little upon the depth and the character of the soil about the roots. A most important item is that of autumn-planting, and it is important inasmuch as the large majority of the stoloniferous or underground shoots are produced at that season, appearing above ground early in spring. Concurrently with these underground stems any new root fibres are produced, and these greatly assist the newly-planted subject. So far as soil is concerned, that of a rather light and sandy nature is much the best, but the plant also succeeds well in sandy loam, and even in soil of a peaty nature. Where the soil is very light, sandy and shallow, cow-manure should be added. In light soils the planting cannot be done too firmly. I have employed the turf beater, garden roller, and spade scores of times to firm the plants in their positions even after firm planting. Newly-made beds or edgings of the plant are purposely walked upon with the same object. When forming edgings of the plant in such soils the ground is prepared as for laying an edging of Box, the soil made firm by beating, and the small portions of the plant buried well up to the lowest leaves. Happily, the leathery texture of the leaves is proof against injury from either treading or beating, and these are no longer necessary when the plant becomes established. A perfectly-drained soil is very necessary for the plant, and an assured depth of at least 12 inches of good soil. In large gardens, where a heap of old potting soil exists, nothing more suitable could be chosen. The capacity of the plants to flower year after year depends largely upon the production of new shoots from below. When in good condition, these shoots are produced numerous, and a tuft, becoming crowded in time, would then deteriorate. The remedy is division and re-planting. And were this done more frequently the almost flowerless tufts of this beautiful spring-flowering plant that too often are seen in gardens would be less frequent. E. H. Jenkins.

NOTICES OF BOOKS.

LANDSCHAFTLICHE GARTENGESTALTUNG. By Camillo Karl Schneider, with 73 illustrations. Published by Carl Scholtze (W. Junghaus), Leipzig.

THIS, in addition to the author's previous works on garden-making and cognate subjects, has met with a favourable reception in Germany and Austria. The topics discussed, unlike those in earlier works, are confined within narrower boundaries, and consist of personal views with regard to the modelling and formation of gardens in landscape style in opposition to the architectural, geometrical, and combination of all three, as are frequently found at the present day in all parts of Europe.

The whole is arranged in such a manner that anyone with experience in the formation and improvement of gardens, whether layman or practical horticulturist, can readily understand it, and the illustrations with which the book is furnished are precisely such as will please those who may not share the views of the author. He is concerned chiefly with the present and the future, the past being touched upon only so far as its lessons explain that which is stated and what is demanded by his subject. He holds the belief that the professional man and the layman differ so widely about that which is carried out and as to what should be done in this field as to be unable to give a proper verdict, therefore there is the greater necessity for the gardening art to speak for itself.

In many art-circles, and in particular among architects, the belief has become general that the formation of a garden, from the artistic point of view, is an architect's business; in other words, that no such thing as the art of landscape gardening exists. This view of the subject is contested by

the author with great zeal and knowledge, and the illustrations included in the book give strong support to his views. There are pictures from many noted parks and gardens, private and public, in Germany, Austria, France, Italy, and Bosnia, the water scenes being very charming, some being natural, others artificial, but even in the latter nature is very closely followed. We do not see in what essentials the methods advocated differ much from those which for a hundred years have been the fashion in the best places in our own country. In Germany and Austria, on the contrary, where the *Englische* style has not been adopted, stiffness and formality are the characteristics of the laying out, with their concomitants, close planting, and groups of trimmed shrubs, both deciduous and evergreen, lack of breadth in the treatment of the planting, and the effects of light and shade but little considered. F. M.

The Week's Work.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Vines which failed to ripen satisfactorily should be examined at their roots in the inside borders, and if any long, bare roots, having few or no fibres, are found, such roots must be pruned. The best time to root-prune the vine is about the end of September or the beginning of October. But it can be done now, and it is not advisable to postpone the operation for a whole year. Cut out a trench down the centre of the border as far as the drainage material, and remove all the soil in the border nearest the vines until almost the stem of the plant is reached. Tie the roots in bundles as the work proceeds. See that the drainage provided is in proper order. Any roots found growing among the drainage material must be removed, and, when the trench is filled in, be laid in nearer the surface. Furnish some fresh compost composed of good turfy loam chopped into pieces about 3 inches square. To every 3 tons of loam add 1 cwt. of coarse-grade Vine manure; if the loam is of poor quality or sandy, add a further $\frac{1}{2}$ cwt. of fine-grade fertiliser, a liberal quantity of wood ashes and lime rubble, mixing the whole thoroughly together. A light loam will not require the addition of as much lime rubble as a heavy one. Place a single layer of turves grass-side downwards over the drainage, and fill the trench with the compost, spreading the roots carefully as the work proceeds as near to the surface as possible. Shorten any long, bare roots to within 2 feet of the main stem. Consolidate the soil, and when all is finished give a copious supply of water and cover with a mulching of manure. The outside border may be renewed in the same manner during September or October next.

Young vines planted in new borders during last spring or summer should, if strong of growth, be shortened back to the bottom of the roof rafters, but if weak they must be pruned harder, say, to within 2½ feet from the ground. Two or three years old vines must also have their leaders shortened, according to the strength of the rods, and their laterals pruned back to a single bud. A length of 2½ to 3 feet of last season's growth will be sufficient to leave. Examine the inside borders, and if they are found to be well filled with roots add another 18 inches to the width of the border, using similar compost to that recommended above.

Peaches and Nectarines.—When the weather is too severe for work outside cleanse and, if required, paint the structures containing these fruit trees. The walls should also receive a coating of lime-wash, to which some sulphur has been added. The trees themselves should be washed with soft soap or Gishurst compound by means of a soft brush, taking care not to draw the brush backwards against the buds. After this operation prune and tie the branches to the trellises. Examine the border, and remove any loose soil down to the roots. Afford a top-dressing of light loam mixed with lime rubble and fine-grade Vine manure. Give the border a copious watering if at all dry. If, as is often the case, young trees are growing too vigorously, they should be lifted and root-pruned, and some lime rubble added to the border.

Strawberries in pots should be examined, and plants with best crowns be selected, cleaned, and have their pots washed. Place the selected plants in a gentle heat, in pits, or in a vinery that is shortly to be heated for forcing purposes. Keep the plants near to the glass, and maintain a night temperature of 45° rising to 55° by day. Do not unduly hurry them into growth, and afford ventilation only when it is necessary.

Cucumbers in pots will require a night temperature of 70°. Do not overcharge the atmosphere of the pits in which they are growing with too much moisture. Increase the heat, and afford more moisture as the days lengthen. Pinch the points of the shoots as the plants develop. Make a fresh sowing in pots for a successional crop.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Bedding Pelargoniums.—Owing to the unusually dry summer, it was difficult last autumn to get sufficient cuttings without despoiling the flower-beds, and it may be necessary to make up the required numbers with spring-rooted plants. Judgment must be exercised when cutting growths for furnishing cuttings for this purpose, because if the plants are cut back very severely, it will be a case of "robbing Peter to pay Paul," and nothing will be gained. Keep the knife sharp, so as to make a clean cut, and remove the lower leaves and stipules. Place five or six cuttings in a 48 size (5-inch) pot in preference to boxes. Place them in a warm house and do not water them more often than is absolutely necessary. When they have made roots, these plants should be potted off singly into 60's (3-inch pots). The stock should be frequently looked over, removing all decaying leaves with a downward jerk. It is surprising what a small quantity of water suffices at this season to keep these plants in good health, and they will withstand a low temperature better if kept somewhat dry.

Propagation of Yuccas.—Any stems which have been broken down by the recent snow-storm should be used for purposes of propagation. If not too large, the head may be cut off and, after tying up the leaves, pot it firmly and plunge in a warm hot-bed. By May or June it will be sufficiently rooted to plant out of doors. The stem from which the "head" was severed may be laid full length in the propagating frame, or be cut up into short pieces. In either case, the dormant buds will soon grow and form shoots, which when 3 or 4 inches long may be taken off and rooted in small pots, or be allowed to form roots before being removed. Field mice often prove very destructive to Yuccas during hard weather, so that it is well to watch for any signs of them. The mice usually burrow under the plants, and then, secure from observation, eat all the pithy portion of the stem, leaving simply the rind and skin. The sickly appearance of the leaves is the first sign of anything wrong. As they have a storehouse of food, trapping is of little use. I have usually found that waterings with quassia chips infusion, or a handful of soft soap and a quarter of a pint of petroleum well mixed in 3 gallons of water and poured down the holes will drive the rodents away, and do no harm to the Yuccas. The soil around the stems should be examined at intervals, and the dose repeated if there are any signs of their return.

Protection.—Examine the protective material around the more tender plants and shrubs. Bracken and straw will be found sodden and of little value as protective material. This may be entirely removed, and either replaced at once with a fresh supply or withheld until the weather hardens again. The thawing of snow has also weighted down the layer of leaves which was placed over the roots of many plants, keeping the soil cold. A few minutes' work with a fork will remedy this. For protecting tender evergreen shrubs, nothing is better than to surround the bush with deep wire-netting, leaving 6 inches or so of clear space. In the bottom place about 3 inches deep of leaves, which will keep all frost out of the soil, and on this around the lower parts of the shrub lightly place a handful of dry bracken. Then stick in the soil around the plant, a few large branches of hardy evergreen—*Rhododendron ponticum* for choice. This

will give ample protection, and allow sufficient air and light to penetrate and keep the shrub in good health.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

The forcing-house.—Continue to introduce successional batches of plants into heat according to requirements, taking care not to subject them to excessive heat at the commencement. It is a good plan to put small batches into fruit-houses which are just being "started," and move them into a greater degree of heat as it becomes necessary. Azaleas of all kinds (especially the *A. mollis* × *sinensis* varieties) are indispensable, the varieties Anthony Koster, Mme. A. Koster, and Glory of Boskoop being extra good for forcing, though unnamed seedlings may be procured more cheaply, and are capable of giving a splendid return. *A. Daviesii*, having sweet-scented, white flowers, is a favourite, and there is no lack of beautiful varieties of *A. indica*. Lilacs, Acers, *Prunus triloba*, Wistarias, Laburnums, and *Staphylea colchica* will all respond to forcing at this season. Standards of these species are very useful for the conservatory, and for the arrangement of groups. Sufficient *Spiræas*, *Lily-of-the-Valley* crowns and bulbs may be brought into heat. Tulips, perhaps, are capable of bearing more forcing than most bulbs. Daffodils should be brought along very gradually, and all bulbs must be thoroughly well rooted before they are forced, or failures will result. *Polygonatum multiflorum* (Solomon's Seal) is a capital plant either for cutting, or arranged with brightly-coloured flowering plants. Home-grown clumps, as a rule, are most satisfactory for forcing; the same may be said of *Dicentra spectabilis*, the forcing of which, however, must be done very gradually.

Violets in frames.—Air should be admitted every day when the weather is suitable. Remove all decayed leaves from the plants, and stir the surface soil occasionally to keep it sweet. Very little water need be afforded at this season. Contrary to several growers who have written in the *Gardeners' Chronicle* recently, I have always found the variety *Princess of Wales* to be more satisfactory than *La France*. Of the double-flowered varieties, Mrs. J. J. Astor is very free in flowering, and of a distinct shade of colour. This, together with *Marie Louise* and the white *Comte de Brazza*, are the varieties chiefly relied on here. A newer variety named *Mme. Bertha Barron* is under trial, but I have not grown it long enough to speak definitely of its merits.

Souvenir de la Malmaison Carnations.—These can be best wintered in a light, well-ventilated house, the conditions of which should be pretty much the same as those for the winter-flowering varieties [see Calendar in last week's issue], but the atmosphere may be slightly cooler. If the disease or "rust" is noticed, the plants should be examined every week, and every piece picked off on its first appearance and burnt. This practice, though making the plants look rather shabby for the present, will eventually stamp out the disease. There are various preparations on the market for spraying the plants, but my experience is that the above method, if persevered with, will invariably give the best results. Fumigate regularly in all Carnation and other plant-houses, not waiting until greenfly or other insect pests have a strong hold on the plants, as Carnation leaves, once having suffered from the ravages of these pests, will always show the effects, thus spoiling the appearance of otherwise healthy plants.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor LAWRENCE, Bart., Burford, Surrey.

Heat and moisture.—If the weather is mild, only a moderate amount of fire-heat will be necessary to maintain the proper degree of heat, and very few dampings down should be done when the external atmosphere is moist. The paths and stages of the East Indian division should be well syringed in the morning as soon as the proper degree of warmth is reached; in the afternoon, when the fires have been re-started, the paths, &c., may again be sprinkled. In houses where the atmosphere dries more quickly, it may be necessary to again

damp down lightly during the evening. In the Cattleya and intermediate houses a moderate damping of the floors two or three times each week will suffice. Some Cattleya houses, however, may be sufficiently moist naturally, and it will be only necessary to give the usual applications of water to the roots of the plants. As regards the cool houses, they also should be damped down or not according to their construction and situation. Generally, they will need but little damping after the necessary waterings and the washing of the floors have been carried out. Should the atmospheric temperature be more than 40°, admit a moderate amount of fresh air to the plants in all the divisions, carefully considering whether the houses are in exposed positions or otherwise.

Blinds for use in cold weather and bright sunshine.—There may still be severe and boisterous weather to come. See that all the lattice-wood blinds are in thorough working order by having the pulleys, &c., well oiled, so that they may be easily rolled down, and it is advisable to attach strong cords to them in order to keep them from being blown over should strong winds prevail. The present is a suitable time to take down any of these blinds that need repairing, taking the opportunity to oil and repaint them before refixing them to the roof. Our method is to do one blind at a time, and in the event of very cold weather occurring during the process, to cover the roof with other material. Where the ordinary canvas blinds are used, the old ones should be examined and repaired, and if any new ones are required, proper measurements should be taken, and the material placed in the hands of those who may have to make them. Prepare a number of garden mats by tying in the ends strong and neatly; these will be useful during very cold weather, and if rolled along the eaves, or lower part of the roof, they will be of great assistance in maintaining the proper degree of heat without the use of excessive fire-heat.

PUBLIC PARKS AND GARDENS.

By W. W. PENTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

The making of provision for the playing of games in parks.—Although nearly everyone nowadays recognises the importance of fresh air in the preservation and improvement of health, it is still quite impossible to get people to leave the vicinity of their dwellings and get out into the open, unless there is some ulterior motive for their doing so. In nearly every large town and city, parks and open spaces of some kind are provided wherein the residents may enjoy better and purer air than is to be found in the crowded thoroughfares and hemmed-in streets. People, however, will not visit these parks simply for the sake of getting a breath of fresh air, hence the authorities are realising more and more that, in addition to providing large parks and open spaces, it is their duty to do everything in their power to attract the people to them. Thus their parks are made as beautiful as possible with varied kinds of flowering trees, shrubs, herbaceous plants, and conservatories filled with plants, so as to interest those with gardening and æsthetic tastes. Music is provided at stated intervals during the year to attract those who are musically inclined; and, lastly, provision is made for the enjoyment of all kinds of games and sports suitable to the area and formation of the ground at their disposal. The provision for, and encouragement of, sport is a most important function of a parks department, appealing as it does to old and young alike, and to every class of the community. The greater the diversity of the games provided for, the greater will be the number of people attracted to the parks.

Football and cricket.—Every parks department ought to provide ample room for the playing of football in the winter and cricket in the summer, these being the most popular of all our national games. From the parks management standpoint, the advantage of these games is that they not only attract and find amusement for the actual players, but they bring out great numbers of interested spectators.

Hockey, baseball, and la crosse.—Next in importance come the games of hockey in the winter, and baseball in the summer, and as these are both very popular, every effort should

be made to find room for them. La crosse is a winter game, which is now played in this part of the country, and we have found it necessary to make provision for it also.

Games for the pleasure garden.—The foregoing are essentially games for the young, and should be confined to the recreation ground pure and simple. There are other games which are more for the amusement of older folks, which are better allocated to some part of the pleasure garden, such as tennis, bowling, croquet, and quoits. These are now very often provided as part of a park's attraction, and are invariably greatly appreciated by the general public. Archery is a sport which is being introduced in a few parks for the benefit of the ladies, but, owing to its special requirements as to site, &c., it can hardly become general.

Water sports.—Where a park possesses a large lake fed by a constant stream of fresh water, there are possibilities of providing boating, bathing, fishing, and model yachting, and in winter skating and curling can all be indulged in during periods of frost.

The question of "condition."—Although it has been commonly agreed that public bodies need not attempt to keep public recreation grounds in such a good condition for play as private clubs keep their grounds, I think every effort should be made to keep the ground in the best possible condition for the playing of the game for which it is intended. Hockey and football grounds and cricket pitches should be rolled and mown as often as they need it, while in the case of tennis courts, bowling and croquet greens, as much care and attention should be bestowed upon them as is given by private clubs to theirs. This policy gives the greatest satisfaction to players, and pays in the long run.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Pruning orchard trees.—In the carrying out of outdoor work such as planting, pruning, &c., the weather must be the determining factor, as even one night's frost of 12° is sufficient to prevent the ground being properly worked, unless it be trenching for a new plantation. Even in such a case it is unwise to bury hard, frozen soil 2 to 3 feet deep, because such soil would naturally remain cold and wet for a long period. Should there be a period of frost, however, a few hours in the middle of the day may be utilised to push forward the thinning, as well as the pruning and cleansing of orchard trees, still much neglected in many parts of the country. Trees that have been given little or no attention in the matter of spraying will sure to be more or less covered with Lichen, especially the trunk and larger branches. Much of this can be removed with a flat piece of wood and a half-worn-out scrubbing brush, thus leaving less for the spraying that should follow pruning. It is not good practice to be very severe in the pruning of a much-neglected tree, it being better to extend the treatment to the second season, thus preventing the tree from suffering too great a check. Cut away the worst of those branches which intercross with each other, and endeavour to keep the centre of the tree open to the influences of sunshine and air. Where a saw has to be used, the cuts should be made smooth and clean with a chisel, and afterwards coated over with Stockholm tar, which will prevent decay during the healing of the wound. Burn up the spray-wood, and return the ashes to the soil, such ashes having an excellent fertilising effect upon every kind of fruit tree.

Planting.—After planting young trees on a Grass-plot, the Grass or turf should not be allowed to grow within a radius of 6 or 8 feet of the bole.

Bush fruits.—Some delay the pruning of Gooseberry bushes until late in spring, especially where birds are unusually numerous, but if left to themselves the birds will serve all the shoots alike, and there is, therefore, very little to be gained by postponing the work. Last season's shoots are capable of yielding the heaviest crops. Cut out the points of such of these as will be retained at about 20 inches from the point of origin, and prune back "close-home" all surplus shoots, and any that are likely to reach the ground when laden with fruit. Keep the main shoots about 6 inches apart, and the centre of the bush open, so that

the gathering of the berries may be the more conveniently carried out. Select a number of cuttings from the straightest shoots about 12 inches long, and cut out all the "eyes" except the uppermost three. These should be planted in nursery lines 6 inches asunder. Red Currants require to be spurred back to within two "eyes;" extension shoots may be left 8 inches long. Cuttings should be made and set out in the manner recommended for Gooseberries. Black Currants require different treatment. Merely cut away exhausted branches, encourage basal growths to take their place, and spurring back side-shoots where these are too numerous. Cuttings of Black Currants should not be trimmed, it being desirable that sucker growths should appear annually. Syringe Gooseberry and Red Currant bushes with a thin mixture of soot and lime, and wind black and white cotton among the branches to scare away birds.

THE KITCHEN GARDEN.

By WILLIAM HONNESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Globe Artichokes and Celery.—If these crops have not already been supplied with a covering of long litter, this means of protection should be afforded without delay. A few of the outer leaves should first be removed from the Artichokes and a few sticks placed close up to the plants to hold them up, and to prevent the litter from bearing directly on them, which might cause the plants to decay should there be a long period of wet weather.

Lettuce growing in frames should be afforded plenty of air on bright, dry days, and all decaying leaves should be removed at intervals. The variety of cabbage Lettuce known as "All the Year Round" usually winters well in frames, and will often do so on a warm vine border out-of-doors, turning in and giving good returns in early spring. Where Bell glasses or the French cloches can be obtained, the variety *Petite Noire*, sown at intervals during September and October, will yield a good supply of the most tender Lettuce throughout December until the end of February. After the last few warm days in early autumn this variety requires no air admitted whatever, whether grown in frames or under cloches, a fact which speaks for itself for the cleanliness and tenderness of this Lettuce.

Broad Beans.—The long-pod section maturing almost as early as the smaller varieties, a sowing of these in boxes now would form a close succession to those sown in the open borders in November, and should the winter prove a severe one, and sharp frosts prevail while the latter are in flower, this second sowing will be almost as early, and will sometimes fill a vacancy provided these are brought on hardy in a late Peach house or vinery.

French Beans.—Plants raised from seeds sown in pots after this date will give better results than those sown in the autumn. A mixture consisting of manure from a spent Mushroom bed, and loam in equal parts, will be found a good compost for this crop, using pots seven or eight inches in diameter, which should be filled to within an inch of the top. I do not recommend the old method of half filling the pots, thus allowing for the application of a liberal top-dressing later on, because a percentage of the young plants get fatally bruised during the process. Do not afford any root-waterings until the seeds have germinated. Afford all the light possible and an atmospheric temperature of 55° to 60°. As the young plants continue to advance in growth they will need the support of a few short sticks.

Asparagus.—If forced Asparagus will be required in large quantities a liberal supply of roots had better be lifted whilst the ground is still free from frost. Although this vegetable is soon injured if the roots are exposed to the air, the plants will be found quite capable of withstanding a considerable amount of frost, thus, if more are lifted than are required for one batch, the surplus can be covered with an old mat or two or some long litter, just sufficient to exclude the air. If they are allowed to become frozen they will be found none the worse for this experience when it is necessary to place them in the frame for forcing.

Cauliflower.—Make a small sowing of this vegetable in a pan or box, and place it in a sunny position, close to the glass, in a cold frame. If this batch is intended to succeed a sowing made in autumn, the variety *Magnum Bonum* may be selected, but if no previous sowing has been made I would recommend the selection of *Early London*, or *First Crop*.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JANUARY 14—
R.H.S. Exam. of Public Parks and Gdns. Employees.
Unit. Hort. Ben. & Prov. Soc. Com. meet.
TUESDAY, JANUARY 15—Nat. Amat. Gard. Assoc. meet.
WEDNESDAY, JANUARY 16—
Ann. meeting Brixton & Dist. Hort. Soc.
THURSDAY, JANUARY 17—Linnean Soc. meet.
SATURDAY, JANUARY 19—German Gard. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—38.8°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 9 (6 P.M.): Max. 47°; Min. 44°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 10 (10 A.M.): Bar., 30.3; Temp., 48°; Weather—Overcast.

PROVINCES.—Wednesday, January 9 (6 P.M.): Max. 49° Ireland S.W.; Min. 43° Scotland N.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Border Plants and Perennials, Azaleas, Roses, Hardy Bulbs, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.
WEDNESDAY—
Herbaceous and Border Plants, Hardy Bulbs, &c., at 12; 5,000 Roses at 1.30 & 4; Palms, Plants, Azaleas, Fruit Trees, &c., at 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
FRIDAY—
Grand imported Cattleya Mossiae and other Orchids. Consignment of Odontoglossum crispum, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The American Gooseberry-mildew.

Seldom, if ever, has the Horticultural Hall justified its existence more fully than on Tuesday last, when a discussion took place on the now engrossing topic of the American Gooseberry-mildew. There was a crowded meeting; scientists jostled with fruit-growers, market-gardeners were mixed up with members of Parliament and Government officials. The Market-Gardeners', Nurserymen's, and Farmers' Association took a leading part in organising the meeting. The discussion was free and unfettered. Sir Albert Rollit, in opening the proceedings, deprecated the passing of any formal resolution, and hence much more freedom of debate was secured than would have been the case if the society had been committed to any definite course of action. From what took place at the meeting, it seems evident that no amount of legislation could prevent the introduction of fungus spores. We have had a conspicuous illustration of this in the case of the Phylloxera, which, in spite of the most drastic regulations, has spread throughout the vine-growing countries of the world. If legislation could not stop the progress of a little insect relatively much bigger than a fungus spore, we may be sure it would be powerless to arrest the progress of such very minute bodies as the spores of a mildew. But, although we deprecate the attempt to get the Government to do what is either useless or what we ought to do for ourselves, that does not imply that nothing should be done. The cry of the growers is that something must be done. Undoubtedly it should, but it must be done by the only people capable of doing it effectively—that is, by the growers themselves. The mildew is in the country; we cannot keep it out, but we can lessen its ravages by watchfulness and prompt action. Stamping out is very effectual in certain diseases of animals, just as small-pox may be and is in some countries practically exterminated by vaccination, but it by no means follows that the stamping-out process could be efficiently carried out in the case of a mildew. Practical men must look to what is practically possible, not to what is utopian.

Adverting now to the proceedings on Tuesday, we may add that Professor Salmon laid his case lucidly and forcibly before the meeting, and illustrated his remarks by excellent lantern slides, some taken from the figures in the volume of the *Journal of the Royal Horticultural Society*, 1890, p. 140, and other works. It is not necessary for us to repeat now what Professor Salmon has already written at some length in our columns, from the year 1905 up to the present time, and elsewhere.* The discussion that followed was particularly interesting and useful as eliciting the views of the growers.

Mr. MASSEE prefaced his remarks by stating that what he was about to say was a matter of personal opinion, and did not in any sense represent the views held by the Board of Agriculture. He stated that he was the first to record the presence of the disease in this country, and had himself directed Mr. Salmon's attention to the matter. The dominant feature of Mr. Salmon's argument in favour of legislation was a quotation from an American expert, to the effect that English Gooseberries could not be grown on a commercial scale in America, owing to mildew. This quotation was quite correct, but Mr. Salmon omitted to mention, in his many communications to the Press, that it was made twenty years ago, at a period before spraying and preventive methods against diseases were evolved. Since that period equally emphatic statements have repeatedly appeared in official American publications to the effect that, owing to the efficacy of sprays, English Gooseberries were again in cultivation, and it was doubtful whether American varieties could maintain their supremacy. Such statements appear to have been overlooked by Mr. Salmon, as they are absent from his essays. Under the circumstances, Mr. Salmon's leading text must be considered as of historical interest only, and without meaning at the present day. Mr. Salmon's opinion that the disease is new to Europe, and introduced from America, is not supported by facts. The fungus was known in Ireland for some time before its identity was established, and its presence announced by Mr. Massee in the *Gardeners' Chronicle*, August 25, 1900, p. 143, fig. 39. Some European experts consider that the mildew is indigenous in Russia. It is a well-known fact that a given fungus may be present in a country for any length of time before it decides to become an injurious parasite, and, again, a given fungus may prove very injurious in one country and harmless in another. Special weather conditions often furnish the necessary stimulus that determines the commencement of a fungus on a parasitic career; such conditions were experienced in this country last year. Some Gooseberry growers have expressed the opinion that they have known the mildew in this country for many years. These may not be convincing, but they have not been proved to be wrong.

The one important point on which all are agreed, is the fact that the mildew is now established in this country. In Worcestershire, where it is fairly abundant, there is not the remotest evidence in support of the theory that it was introduced from the Continent. What remains to be done, and done promptly, is to practise those measures which have been proved to hold the disease in check in other countries. These are, autumn prunings; winter spraying with a solution of one pound of sulphate of copper dissolved in 25 gallons of water; spraying with liver of sulphur, half an ounce in a gallon of water, if the mildew appears when the leaves are young.

* The present danger threatening Gooseberry growers in Ireland, *Gardeners' Chronicle*, October 28, 1906, p. 306, E. S. Salmon. See also E. S. Salmon, in *Journal Horticultural Society*, London (1890), p. 140; Cooke, *Fungoid Pests of Cultivated Plants* (1906), p. 146.

In the absence of any evidence as to the introduction of mildew on imported bushes, at the moment of importation, and remembering the fact that so few Gooseberry bushes are imported under any circumstances, legislation may be considered as outside the sphere of usefulness in preventing the spread of the disease.

Finally, said Mr. Massee, it must be noted that, from Mr. Salmon's own statements, the mildew is most abundant in those countries where legislation against diseases is most stringent.

Mr. CECIL HOOPER and COL. LONG also spoke, and they were followed by Mr. HANS GÜSSOW, a well-known expert in plant diseases. Mr. Güssow said that, in his opinion, Mr. Salmon has gone much too far in his warnings against the possible damage that the American Gooseberry fungus may do. We have not only to look upon the development of the fungus—of any parasitic fungus—from the laboratory point of view, but we have to consider mainly the question from the side of practical experience. Practical experience has taught mycologists, as well as farmers and fruit-growers, that an attack due to a parasitic fungus only develops into an alarmingly severe epidemic when specially favourable conditions prevail. Such specially favourable conditions are mainly due to climate or superabundance of moisture in the air or to complete absence of moisture—drought. As long as no means are found—and he doubted if they ever would be found—of regulating these conditions, we shall have to deal with fungus epidemics. No legislation can prevent an epidemic due to the development of these microscopic organisms. When these organisms are present—and in the case of American Gooseberry-mildew we have often enough heard that it is present and has been present for some years in this country—an epidemic will only appear when special conditions favourable for the rapid development of the fungus set in. If such conditions do not prevail, no epidemic which need alarm our fruit-growers will ensue, and, in spite of a hundred Acts of Parliament, an epidemic will appear when such favourable conditions exist. Mr. Güssow said he could give a number of instances which would prove beyond doubt that, from the development of an attack of a parasitic fungus to an epidemic outbreak, special conditions are necessary. The fungus is present in this country, and it should be combated—by means of law, if possible—but the speaker considered it unnecessary—or he repeated an epidemic outbreak cannot be checked by law.

Mr. CHEAL spoke as to the necessity of being forewarned, and thanked Mr. Salmon for his efforts in this direction.

Mr. LOBJOIT, in the course of an excellent speech, advocated the necessity of keeping out the disease by legislative enactments, and then of dealing with what is already in the country.

Mr. SALMON replied to the criticisms that had been passed on his paper, and a very hearty vote of thanks was accorded to him.

Various speakers laid stress on the differences of doctors, but those who adopted this line apparently failed to grasp the situation. There is no difference of opinion as to the nature of the fungus, nor as to its destructive habits. Where there is a diversity of opinion is as to the desirability or otherwise of seeking remedial aid from Parliament. This is no doubt desirable in some cases, but for the reasons already stated such aid would in this particular case most probably be ineffective. Watchfulness and prompt and specially combined action on the part of the growers, will do more than any Act of Parliament to keep the American Gooseberry-mildew in check.

LINNEAN SOCIETY.—The next general meeting will be held at 8 p.m. on Thursday, January 17, 1907. Papers:—1, Mr. W. BOTTING HEMSLEY, F.R.S., F.L.S., "Platanthera chlorantha, var. *tricalcarata*"; 2, the late Mr. C. B. CLARKE, F.R.S., F.L.S., "Acanthaceæ of insular Malaya"; 3, the Rev. T. R. R. STEBBING, F.R.S., Sec.L.S., "A Freshwater Isopod from Calcutta."

THE BOTANICAL MAGAZINE.—The first part of the New Year appears under the editorship of Col. PRAIN, the Director of the Royal Botanic Gardens—a happy augury for the continued successful conduct of the magazine. The plants figured are the following:—

LOMATIA FERRUGINEA (Rob. Brown), tab. 8,112.—This is a well-known greenhouse shrub, or small tree, with elegantly divided leaves. It is a native of Chile, but has not only proved hardy at Castlewellan, Co. Down, but flowered there in July 1906. The flowers are numerous, reddish, and arranged in axillary clusters. The description is furnished by Mr. SKAN.

ACONITUM GYMNAETHUM (Maximowicz), tab. 8,113.—A native of Tibet and Western China, and so remarkable in its structure as to suggest a monstrosity rather than a normal species. The sepals are spatulate with long claws and ovate blades of a violet colour twisted so as to expose the stamens. The hood, generally so conspicuous in Aconites, is relatively very small. Moreover, the plant is an annual. For these reasons Dr. STAFF, who contributes the description, places it in a separate section (*Gymnoaconitum*), of which it forms the sole representative. Kew.

VIBURNUM CARLESII (Hemsley), tab. 8,114.—See also Bean in *Gardeners' Chronicle*, 1906, i. p. 306, and also figure in *Gardeners' Chronicle*, October 11, 1905. Hardy at Kew.

TRICUSPIDARIA DEPENDENS (Ruiz and Pavon) tab. 8,115.—A Chilean shrub or tree belonging to the Tiliaceæ. Its ovate, shortly stalked, coriaceous leaves are pale on the under surface with a red midrib. The campanulate white flowers are borne singly on long peduncles proceeding from the axils of the leaves. It is hardy in parts of Cornwall and in south-west Ireland.

RENANTHERA ANNAMENSIS (Rolfe), tab. 8,116.—An Annamese Orchid described by Mr. ROLFE and distinguished from *R. imschootiana* by its much smaller flowers and spotted sepals. Perianth segments linear, oblong, yellow with red spots, lip much shorter than the segments spurred at the base and with a thick callus in the middle. Kew.

CALCUTTA BOTANIC GARDEN.—Captain GAGE, of the Indian medical service, has been appointed superintendent of the Royal Botanic Gardens, Calcutta. If we are not mistaken, this is the third time in succession that a graduate of Aberdeen has been appointed to this important position; certainly Sir GEORGE KING and Lt.-Col. PRAIN both hailed from the northern University.

G. C. CHURCHILL.—A very full and interesting account of the career of this gentleman is given in the last number of the *Kew Bulletin*. As was noted at the time of his decease, CHURCHILL had an exceptionally good knowledge of mountain-plants, and not only enriched the herbarium with very numerous dried specimens, but contributed very largely to the furnishing of the rock-garden at Kew. His assistance in checking the nomenclature is also warmly acknowledged. It is interesting to note that CHURCHILL had little faith in transitional forms apart from hybrids. "Recognised species have long been in a condition of perfect equilibrium with their environment, only disturbed by insect action to a limited extent, but when you begin to cultivate them new forces are set in action and produce no end of changes." What would he have thought of "mutation"?

PROF. HECKEL.—In recognition of the services to economic botany and to the French colonial possessions, it is proposed to present Prof. HECKEL with a special gold medal. A committee has been formed for the purpose of receiving subscriptions, which may be sent to Prof. DOMERGUE, 341, Rue Paradis, Marseilles, France.

THE "KEW BULLETIN."—A part recently issued is of great importance as affording an indication of more regular publication, and especially for its contents, which are of unusually varied interest. We shall take the opportunity of alluding to some of its contents on other occasions. Meanwhile we may add that the publication may be had from WYMAN & SONS, Fetter Lane, for the nominal price of fourpence.

"THE POTATO YEAR-BOOK."—The Potato has at length got a year book all to itself. Its economic importance, its history and scientific interest justify such a production. The present booklet is edited by Messrs. HORACE WRIGHT and W. H. ADSETT, as the official publication of the National Potato Society. It is published at Hatton House, Great Queen Street, and, whilst it is presented to members of the society, it may be procured by the profane for one shilling. Mr. MASSEE leads off with an account of the black-scab or warty disease of the Potato, now attributed to a fungus known as *Edomyces leproides*, which is a much more destructive fungus than is commonly supposed. Gas lime, spread on the surface in April and lightly dug in in May, is the only remedy proposed. Mr. WALTER WRIGHT, the founder of the society, gives his opinion as to the six best Potatos for table as follows:—Factor, Golden Worthy, Langworthy, Peacemaker, Up-to-Date, and Windsor Castle. Other papers are contributed by Mr. MALDEN, who finds fault with the business methods of some Irish growers and dealers, by Mr. FOSTER, Mr. WILLIAMSON, and Miss POAD. Prof. MIDDLETON contributes a valuable report on the experiments carried out near Cambridge. Amongst other points, Prof. MIDDLETON brings forward evidence to show the ill-effects of "Express Cultivation," and, now that the absurd "boom" is a thing of the past, it may be expected that this method of cultivation will only be employed for special purposes and under exceptional conditions. The reports of the trials in various counties are already valuable, and will become increasingly so as time goes on. Numerous portraits are given, and a table of contents that is called an index, but which hardly deserves such an appellation.

RETIREMENT OF MR. SANGWIN.—Many friends of Mr. SANGWIN, the veteran gardener and home steward of Trelissick, near Truro, writes a correspondent, will be interested to know of his retirement at the end of the present month. For close on 49 years he has enjoyed the esteem and confidence of his employer, and now he lays aside the harness to enjoy—for many years, we hope—a well-earned rest. It is given to few men to hold a responsible position for nearly half a century, and to fewer still to turn to account so successfully the natural features of an estate. Many visitors to Trelissick will remember the pond, with its huge Gunneras, its Nymphæas, its numberless Richardias, and its bog plants flanked with magnificent Dicksonias. Besides acclimatising numerous sub-hardy plants, Mr. SANGWIN made a collection of hardy fruits, and was a most successful cultivator. Holding progressive ideas, his knowledge has been freely given, and his advice to many a young man, accompanied with droll stories, will long live in the memory of the recipients. Mr. C. DAY, of Haverland Hall Gardens, Norwich, will succeed Mr. SANGWIN.

PLANTS FROM THE CONGO.—The first part of the second volume of M. EMILE DE WILDEMAN's work has now appeared. These "notices sur les plantes utiles ou intéressantes de la flore du Congo," are accompanied with plates that are both interesting and valuable, as they are from photographs of the plants and their natural surroundings.

THE "BLANCARD" FUND.—Mr. C. HARMAN PAYNE, Foreign Secretary N.C.S., 141, Well-meadow Road, Catford, S.E., acknowledges further donations to this fund amounting to £3 13s.

POTATOS IN IRELAND.—The current number of *Irish Gardening* is largely devoted to articles concerning the cultivation of Potatos in Ireland. The results of recent experiments have attested the value of Irish-grown Potatos for "seed" purposes, and a vigorous effort is now being made to turn this circumstance to practical advantage. Directions are given to the farmers to grow the desired kinds, true to name and free from disease, to lift the crop early, and generally to study the requirements of the English market, even when they run counter to the regular practice adopted in Ireland.

THE CEDARS AT KEW.—London smoke, aided by that of Brentford and of Richmond, have contributed to the death of one of the few fine Cedars of Lebanon near the Pagoda. The sterile soil and the droughty summers of the last few years have, says the *Kew Bulletin*, hastened the destruction of these noble trees. Incidentally we may repeat our suggestion that the formation of a new arboretum at Wisley or elsewhere should occupy the attention of those concerned. We believe the R.H.S. has some intention of forming an arboretum, but, remembering the fate of the once famous collection at Chiswick, we should prefer to see a new arboretum placed under Government supervision.

THE "REVUE HORTICOLE."—On opening the number for January 1 we were confronted with the announcement that our colleague and friend of many years' standing, M. ED. ANDRE, has been obliged, on account of ill-health, to retire from the editorship. This is a matter of grave concern for his many friends. What M. ANDRE has done for botany, horticulture, and landscape-gardening is as well known and as highly appreciated by experts in this country as in France, so that very great sympathy will be felt both for him and for the management of the *Revue*. M. D. BOIS, who is called on to take the place of M. ANDRE, is also well known in this country for the zeal and capacity he has shown in horticultural and botanical matters. He entered the garden of the Museum d'Histoire Naturelle (Jardin des Plantes), and gradually rose to be assistant to the Professeur de Culture (Prof. MAX CORNU), and now to his successor. He succeeded DUCHARTRE as literary secretary to the Société Nationale d'Horticulture of France, and was deputed by the Government to visit Tonquin, where he made large collections and accumulated a mass of materials connected with economic botany and the cultivation of tropical plants. His publications are numerous, but perhaps the best known among them is the one published in collaboration with M. PAILLIEUX, entitled *Le Potager d'un Curieux*, a book full of interesting details concerning rare or little-known culinary plants. In conjunction with M. MAURICE DE VILMORIN, he has lately given us a catalogue raisonné of the trees and shrubs growing in M. DE VILMORIN's property at Les Barres. M. BOIS will have the assistance of M. GRIGNAN, who has for some years been connected with the *Revue*, and whose communications amply justify the confidence reposed in him.

NATIONAL CONGRESS OF HORTICULTURE.—Prof. TRACY, of Washington, writes: "Those who essay to explore the ocean of the unknown should occasionally make observations and comparisons to ascertain just where they are. We can learn something of this through a mere physical exhibition of what has been and can be accomplished, but it is far more important that we come to an exact knowledge of the laws through and by which the results are obtained. This can only come through a conference between those who are studying these laws, for what seems a truth to one and, under a certain set of conditions, the experience of another under other conditions, may show is only a seeming truth. It is well, then, for all who are engaged in any particular line of study to meet occasionally for council, that they may ascertain just how much of that we think we know is actually so, to ascertain just how far we are in our voyage into the unknown. To this end the National Council of Horticulture have thought it wise to call for the meeting of a congress of the horticulturists of the world to assemble at Jamestown, Virginia, during the latter part of the exhibition to be held there in 1907 to commemorate the 400th anniversary of the first permanent English settlement in what is now the United States. The exact date of the meeting and the formal programme has not been decided upon, but will be announced later, but in the meantime we ask that all interested in progressive horticulture plan to attend the congress, and communicate with Mr. H. C. IRISH, Missouri Botanical Garden, St. Louis, Missouri, U.S.A., as to what definite subjects should be discussed."

BEAUTY IN ALOES.—There is a great deal of beauty in the flowers of many species of Aloe as may be seen in the succulent house at Kew, where there is a collection of about 120 species. On New Year's Day the following were in flower:—

A. arborescens	A. Lastii
A. aurantiaca	A. microstigma
A. Bainesii	A. natalensis
A. brachystachya	A. penduliflora
A. Cameroni	A. percrassa
A. chloroleuca	A. platylepis
A. ciliaris	A. pluridens
A. Kirkii	A. socotrana

ROYAL SCOTTISH ARBORICULTURAL SOCIETY.—The nineteenth volume of the *Transactions* of this society, or rather the first part of the twentieth, has been issued. It contains a large number of papers interesting to foresters. Among them is one by Dr. NISBET on the "Novar" system of combating the Larch disease by forming pure Larch plantations and thinning out after 16 to 20 years all the diseased trees, leaving only the soundest and most promising. How long they would remain sound is a question which will have to be solved before the practice is generally adopted. On the face of it, it seems as if the plantation of pure Larch must be the most sure method of propagating the pure fungus. Incidentally, we note that Dr. BORTHWICK reports the presence of the Larch fungus on the Japanese species, *Larix leptolepis*, and Sir HERBERT MAXWELL on *Pinus Laricio* and *P. silvestris*. The great value of the Douglas Fir is shown by the fact that, as compared with the Spruce, it "yields about twice the amount of timber with about three times the value," whilst its wood surpasses that of the Spruce in quality. It is satisfactory to hear of the progress made in planting the pit-mounds and spoil-banks in the Black Country. Conifers and Oaks do not thrive in the atmospheric conditions, but Willows, Birch, Alder, and many other trees "thrive quite well under the conditions prevailing in the Black Country." The part, as a whole, contains welcome evidence that the improvement and development of forestry is making progress.

PROFESSOR BAYLEY BALFOUR.—The last volume of the *Garden* is dedicated to Prof. BAYLEY BALFOUR, of whom a good portrait is given. Had he done nothing beyond introducing *Begonia socotrana* he would have deserved well of horticulture.

RHODODENDRON BARBATUM.—Sir HERBERT MAXWELL asks why this species is not more often grown, as it is as hardy as *R. ponticum*, though its brilliant scarlet flowers are apt to be injured by spring frosts if grown in exposed places.

AGRICULTURAL STATISTICS FOR 1906.—According to the report issued by the Board of Agriculture and Fisheries, cultivated or farmed land was reduced in 1906 by 20,000 acres diverted to residential or industrial use. As regards special crops, the area devoted to Potatoes was markedly decreased last year, and the area returned under Hops was the lowest on record. The acreage under small fruits and under orchards increased, the additions being in many, or nearly all, divisions of Great Britain, not in one or two districts only.

NEW NOTES.

PINUS CANARIENSIS AS A BEDDING PLANT.

[SEE SUPPLEMENTARY ILLUSTRATION.]

THE employment of a Conifer as a subject for summer bedding may seem strange to those who are unacquainted with this species. Even more



FIG. 15.—ODONTOGLOSSUM ALICEÆ X.
(See also page 31.)

interesting, perhaps, is the fact that some three dozen small specimens were used as dot plants in a bed of *Cotyledons* (*Echeverias*), with a groundwork of *Mesembryanthemums*, near No. 4 greenhouse at Kew. This may read as a very curious combination, but, from the remarks of numerous visitors, it is quite evident the bed was a success.

The plants were about 18 months old, and from 1 to 2 feet in height. At this stage of their growth the leaves are a silvery-grey colour, a character which they lose after the juvenile stage is past.

To keep the plants from making a too vigorous growth, and to facilitate lifting the plants at the end of the season, they are plunged in their pots. The average plant treated in this manner has, usually, to be watched very carefully to see that it does not suffer from a lack of water, not so the Canary Island Pine, which appears to thrive better with a minimum supply of water. The seeds germinate very readily, and its cultivation as a greenhouse foliage plant when in a small state is to be recommended.

A figure is given in the *Gardeners' Chronicle*, June 9, 1888, p. 721. It is a native of the Canary Islands, where it grows at an elevation

or from 5,000 to 7,000 feet. Excepting in one or two favoured spots in this country, the plant is not hardy, but requires the protection of a cool greenhouse in winter. Several fair-sized trees are, however, flourishing in the open air in Cornwall. D. D.

SEEDLING ODONTOGLOSSUMS AT CHELSEA.

I CAN almost remember the time when people were very sceptical of the existence of these in cultivation, and as recently as 1800 they were considered rather a "cut above" most Orchid seedlings, as witness the report of the *Orchid Review* (October, 1900, p. 314), where it is stated that I had shown two seedlings at once at the R.H.S.—"a specially interesting exhibit in the shape of two seedling *Odontoglossums* raised in his collection."

To-day this reads quite amusingly when we know they are being raised and grown by hundreds almost in the very heart of London upon the dead flat, marshy swamps of Chelsea by Mr. Lakin, for Messrs. W. Bull & Sons.

I have watched his strenuous efforts with great interest for the past three years, and am pleased to be able to chronicle his unmistakable success, as is indisputably proved by the seedling house.

All the plants on the left side and the three front rows on the right of this house are "*Odontos*" or "*Odontios*," the remainder on the right side are either "Seed Beds," or "fine things." There are 900 pots containing over 1,200 little plants. I consider this a remarkable result to have been achieved in the period Mr. Lakin has been in charge, he having assumed his office in September, 1901.

The first *Odontoglossum* seedling to bloom was *O. Aliceæ* (*Edwardii* × *crispo-Harryanum*), which was purchased and shown by J. Gurney Fowler, Esq., at the R.H.S. on the 8th inst., when it was awarded an Award of Merit (fig. 15). It has been but 4, 7/12 years from crossing to blooming, a rapid rate for an *Edwardii* cross, the actual record being "crossed May 5, 1902; sown July 14, 1903; bloomed December 12, 1906."

The photographic reproduction of this beautiful thing once more tells us the immensely powerful influence *O. Edwardii* will have upon the future of *Odontoglossum* hybrids, an influence only equalled or excelled by that of *Cochlidia Noezliana*. It is an interesting speculation upon the future to picture a while hence the result of the union of the best *Cochlidia* and *Edwardii* hybrids. What will they give?

Not only in *Odontoglossums* has Mr. Lakin been successful, for he has remodelled the houses, turned out almost all the species, and nearly filled them again with some 25,000 *Cattleya* or *Lælia*, *Cypripedium* and *Sophranitis* hybrids. There is not apparently much difficulty in raising these, as the seed-pans testify.

Mr. Lakin is to be heartily congratulated upon the results he has achieved for his firm, and there is no reason why his successes should stop, for he is given a free hand and uses it intelligently, as his organisation amply testifies. *de B. Crawshaw.*

NOVEMBER AND DECEMBER IN MY FLORIDA GARDEN.

(Continued from page 2.)

LEONOTIS leonurus, the Lion's Tail, grows with equal vigour, large plants in full bloom being a beautiful sight. It is a fine companion to the Lantana, but it spreads still more and grows larger and taller than that flower. Though scarcely ever out of bloom, it is at its best in November and December. *Cosmos* "Klondike" is a very stately and brilliant autumn bloomer, and *Petunias*, *Tagetes*, *Torenia*, and *Dahlias*, but particularly *Chrysanthemums*, form a sheet of colour where they are carefully tended and where the soil is rich and fairly moist.

ALLAMANDAS.

The *Allamandas* are never out of bloom, but by November they have finished their growths, and the bushes are then covered from top to bottom with the large, finely-shaped and brilliant yellow flowers. They are common garden

plants in Florida, especially *Allamanda Hendersonii*, which forms a rampant climber, and the burly *A. nerifolia*, which is popularly known as the "Golden Bells." Other species, like *A. Sobottii* and *A. Williamsii*, are equally floriferous and easily grown, but they are rarely met with here. Large plants frequently ripen their seeds, which are contained in a burr-like prickly fruit, which varies in the different species, from the size of a small Plum to that of a Walnut. At the present time several of my plants are both in flower and in fruit.

HIBISCUS, DATURA, CESTRUM, &c.

A bed of the different varieties of the Chinese Hibiscus (*Hibiscus rosa-sinensis*) is an object of great beauty, the refulgent and dazzling hues of the large but fugacious flowers creating an enthusiasm in every lover of the beautiful. The single varieties are luxuriant growers, and will attain a height of 10 to 12 feet in rich soil, while the double kinds are dwarfer. Like the *Allamandas*, *Jacobinias*, *Lantanas*, and *Lasiandras*, the Hibiscus is a sun worshipper, thriving only and revelling in the full sunshine, and in consequence reaching here its greatest perfection.

Near my study window, a plant of the Angel's Trumpet (*Datura suaveolens*) has attained very imposing dimensions. I inhale the fragrance of its chaste and lily-like blossoms, which are almost pure white in colour; while writing these lines, several hundred flowers are suspended from its massive branches. Being a gross feeder it requires a large amount of stimulant rich in ammonia and phosphoric acid, and a bounteous supply of water. These plants frequently attain a height of from 12 to 15 feet. Near this specimen, a large *Clivia cyrtanthiflora* grows in perfection, and is now flowering most profusely, and on the opposite side of the *Datura*, *Agapanthus umbellatus* finds a place. Both these plants are natives of South Africa, but while the *Clivia*—a hybrid between *C. miniata* and *C. nobile*—is in full vigour, the *Agapanthus* shows scarcely any sign of growth. The charming sweetness of the Angel's Trumpet mingles with the strong and exceedingly delicious perfume of a large flowering specimen of the night-blooming Jasmine (*Cestrum nocturnum*) and the equally powerful odour of *Cestrum parqui*. The first-named species is a tall, dense-growing shrub, blooming four or five times during the year, its display of the inconspicuous greenish-white flowers lasting only for three or four days. The second species is a dwarf grower, with large crimped foliage of a very dark green colour. The flowers are larger and greener in hue, lasting in full freshness for about a week or ten days. Their perfume is overpowering during the night-time. *H. Nearling Gotha, Florida.*

(To be continued.)

PLANT-NOVELTIES IN 1906.

(Continued from page 4.)

ORCHIDS FROM NURSERYMEN.

Messrs. SANDER & SONS, St. Albans, hold the lead, especially in the matter of imported new species, their ardour in collecting abroad not being extinguished by the ever increasing numbers of their garden hybrids. Among their new species, the best are *Arachnanthe annamensis*, for which the Curator of the Royal Botanic Gardens, Glasnevin, received a First-Class Certificate; *Cymbidium erythrostylum*, *C. insigne*, the pure-white *Ærides virens* Sanderæ; the very fine snow-white *Cœlogyne Mooreana*; the large Annam form of *Phaius maculatus*, *Lælia majalis* alba shown at the Holland House exhibition; *Cattleya Warszewiczii saturata* and *C. Iranæ*; "J. Gurney Fowler," two very handsome forms; also *Cypripedium Godefroyæ leuochilum* Hodgkinsii, a very large and handsomely-blotched variety. The hybrids for which awards were given to Messrs. SANDER during 1906 were *Cymbidium Hoffordianum*, *Brassocattleya The Baron*, and *Odontoglossum Fowlerianum*, which obtained First-Class Certificates; and *Cypripedium "Earl of Tanker-*

ville," *C. Baron Schröder ardens*, *C. Victory*, *Brassocattleya striata superba*, *Odontoglossum Fletcherianum*, *Lælio-Cattleya elegans* His Majesty, L.-C. Golden Beauty, and L.-C. *Candhamiana Meteor*, which received Awards of Merit; also the very fine and distinct *Odontoglossum amabile "Royal Sovereign,"* shown at the Holland House exhibition, with a number of other novelties not yet sufficiently developed to come into this list.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, have been among the most successful exhibitors of hybrid novelties of the past year, receiving First-Class Certificates for *Odontoglossum amabile "John Bradshaw,"* *Cypripedium Ossulstoni "W. H. Hatcher"*—both shown on April 17—and *Cattleya Claudian*. They gained also Awards of Merit for *Cattleya Octave Doin*, *Cymbidium eburneo-giganteum*, *Odontioda heatonensis*, and its variety "St. Vincent"; *Odontioda Bohnhoffiæ*, *Lælio-Cattleya Sunray superba*, L.-C. *illustris magnifica*, *Odontoglossum Eurydice* and *Phalænopsis violacea*, Heaton variety.

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, secured a First-Class Certificate for *Lælio-Brassocattleya Veitchii*, a very handsome secondary hybrid of *Brassavola Digbyana*, and *Brassocattleya Pyrrha*.

Messrs. HUGH LOW & Co. introduced in *Cypripedium Fletcherianum* one of the finest *Cypripediums* of the year, and their *Cattleya Mendelii Mercury* was a noble form.

Messrs. JAS. CYPHER & SONS, Cheltenham, famous for *Dendrobiums*, exhibited a model form in *D. nobile Perfection*.

Messrs. J. W. MOORE, LTD., Rawdon, Leeds, commenced their career as exhibitors with

M. JULES HYE DE CROW, Ghent, for *Odontoglossum percultum Juno*, shown at the Temple Show, was given an Award of Merit; and occasional novelties came from other Continental raisers.

The following Orchids were illustrated in the *Gardeners' Chronicle*:—

- Angræcum Kotschy*, June 16, p. 379.
- Arachnanthe annamensis*, May 12, p. 280.
- Brassocattleya* Mrs. Francis Wellesley, supp., June 30.
- Brassocattleya The Baron*, supp., May 5.
- Bulbophyllum virescens*, supp., Oct. 13.
- Cattleya Schröderæ alba*, May 12, p. 300.
- Cattleya Bowringiana* (specimen), Feb. 24, p. 114.
- Cymbidium erythrostylum*, Oct. 27, p. 286.
- Cypripedium Alcibiades magnificum*, Jan. 27, p. 52.
- Cypripedium Fletcherianum*, Oct. 13, p. 254.
- Cypripedium Germaine Opoix*, Westfield variety, Dec. 15, p. 410.
- Cypripedium Godefroyæ Hodgkinsii*, July 14, p. 32.
- Cypripedium Harri-Leeanum*, Park Lodge variety, Sept. 1, p. 166.
- Cypripedium insigne Sanderæ* (house of), Dec. 1, p. 367.
- Cypripedium Thalia* Mrs. Francis Wellesley, Jan. 6, p. 5.
- Cypripedium tessellatum rubens*, Jan. 13, p. 19.
- Cypripedium tibeticum*, June 2, p. 347.
- Dendrobium Wiganianum*, Gatton Park variety, April 7, p. 219.
- Dendrobium chrysanthum* (1,000 flowers), Dec. 1, p. 374.
- Grammatophyllum speciosum*, Aug. 4, p. 86.



FIG. 16.—VIOLETS CULTIVATED IN POTS AT COKETHORPE PARK GARDENS.

(For text see page 28.)

several distinct novelties, of which *Cattleya Martersoniæ superba* secured an Award of Merit.

Messrs. McBEAN, Cooksbridge, the famous *Odontoglossum* specialists, had for their best novelty *Odontoglossum crispum Laburnum*, a very remarkable variety with *Laburnum*-yellow blooms, and *Lælia anceps Fascinator*.

Mr. WHATELEY, Kenilworth, had the handsomely-blotched *Odontoglossum crispum* Whateleyæ.

Messrs. STANLEY, Southgate, showed the fine yellow *Oncidium Stanleyi*; Messrs. SUTTON & SONS, Reading, the pretty *Cœlogyne yunnanensis*. A few other novelties have been shown by various exhibitors.

Continental exhibits of special merit have not been numerous during 1906.

M. A. A. PEETERS, Brussels, secured two First-Class Certificates for varieties of his beautiful *Odontoglossum Lambaeanum*; another for the showy *Cattleya labiata* Peetersii, and an Award of Merit for his pure-white *Cattleya* Mrs. Myra Peeters.

M. CHAS. VUYLSTEKE, Ghent, has shown several fine *Odontoglossums* during the year, securing awards for *Odontoglossums percultum Meteor* and *Juno*.

Lælia Nemesis, Tring Park variety, Mar. 3, p. 131.

Lælia majalis alba, July 21, p. 45.

Lissochilus Horsfallii, at Tring Park, supp., Mar. 31.

Macodes javanica, supp., April 7.

Miltonia vexillaria Empress Augusta Victoria, supp., Feb. 24.

Odontioda Vuystekeæ x, July 21, p. 47.

Odontoglossum amabile Royal Sovereign, Aug. 25, p. 152.

Odontoglossum crispum G. W. Law-Schofield, June 2, p. 339.

Odontoglossum crispum Leonard Perfect, June 2, pp. 348-9.

Odontoglossum crispum Pittianum, Mar. 31, p. 197.

Odontoglossum crispum Queen of the Earth, May 19, p. 309.

Odontoglossum Fowlerianum, Mar. 17, p. 163.

Odontoglossum Queen Alexandra var. *Carmen*, July 7, p. 13.

Phalænopsis Luddemanniana, April 28, p. 259.

Saccolabium bellinum, June 30, p. 419.

Sobralia Amesiae, supp., Aug. 25.

(To be continued.)

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

CULTURE OF VIOLETS IN POTS.—In reference to the correspondence which has recently appeared in the columns of the *Gardeners' Chronicle* respecting the culture of Violets, I fully agree with Mr. Brewer as to the success to be obtained by growing the plants in pots for flowering in winter. As specimens in pots they form a welcome change from other plants for use in house decoration, and in the conservatory. They are more under control than when planted out in frames, being more readily inspected for decaying leaves, insect pests, slugs, caterpillars, and woodlice, which at times cause them much injury, eating away both leaves and flowers. I enclose a photograph (see fig. 16), which was taken in the first week in December, and which shows part of a batch of plants growing in 6 and 7-inch pots. The plants have been in full bloom since the middle of October, and some of them have still as many as 12 fully-developed blooms upon them, as well as numerous buds. The varieties are Neapolitan and Marie Louise. I also enclose a photograph of the variety Neapolitan (see fig. 17) growing in a cold frame, and from which we have been picking flowers from the end of August, which was some weeks before they were put into the frames. I find that the white Comte de Brazza is more delicate in constitution than any I have to deal with. F. E. Stokes, Cokethorpe Park Gardens, Oxon, December 17, 1906.

INJURY BY RATS AND PHEASANTS.—Rats during the recent hard weather have ruined hundreds of Brussels Sprouts in these gardens, eating the stems through and the core of same to the depth of 2 and 3 inches. They also obtained entrance to a vinery and nibbled off all the shoots from some Chrysanthemum plants. Pheasants here are also very troublesome. On one Saturday in last spring I had about 500 plants of Cauliflower transplanted to a plot of ground from the frames, and on the following Monday there was not a leaf left. I find the only way to grow these vegetables is to protect all the plants with netting. Pheasants are very fond of Seakale sets when planted, and they will pull them out and eat every morsel. They found the New Potatoes and made great havoc by scratching them out and half eating them, then leaving the tubers and passing on to more. Pheasants have also a great liking for the herbaceous plants, laying their eggs under Asters, Pæonies, &c. A bed of early Carrots was taken possession of by one hen pheasant, and when the Carrots were ready for pulling they had to be left until the young pheasants were on the move. R. Mountford, The Gardens, Norton Priory, Runcorn, Cheshire.

LIRIODENDRON TULIPIFERUM OR SADDLE-LEAF TULIP TREE.—When looking through the ninth and last volume of a fine old Dutch botanical work, published at Amsterdam in 1748, and entitled *Opus Botanicum*, by W. C. Weinemann, I came across, on plate 997, a portrait of a beautiful form of this well-known, handsome flowering tree which was quite new and unknown to me. In the ordinary form the flowers resemble those of a green Tulip, with golden yellow flakes and markings, but usually produced only on the upper branches of old trees. As in a young state this tree never blooms in this country, they are seldom seen by anyone. In the form figured in the above-named old Dutch work under the name of *Tulipifera Virginiana tripartita Aceris folio*, the centre of the flower is bright rose coloured, with streaks of the same colour down the centres of the petals, forming altogether a most beautiful flower. On the next plate is figured, under the same specific name, with the words *Anthera filamentosa* added, the ordinary form with yellow and green flowers. The text of the book being all in the Dutch language I can learn nothing from it. It would be interesting to know if this rosy form is still in cultivation. W. E. Gumbleton.

FRUITS OF JASMINUM OFFICINALE.—I enclose some fruits of the common white Jasmine belonging to a neighbour of mine, who has two plants: the one planted on a north aspect, the other facing the south. Both the trees were laden with fruits this autumn, and as this is a very unusual occurrence, I am sending some for your inspection. F. Mitten, Hurstpierpoint, Hassocks.

MEGACARPÆA ARMENA.—In reference to a note in last week's issue, by F. M., this name is evidently meant for *Megacaryon armenum*. The plant comes from Turkish Armenia, and the description given fits the plant very well. *M. armenum* was figured in the *Gardeners' Chronicle*, 1897, ii., p. 226, f. 67-8, under the name of *M. orientale*. In the *Kew Index* *M. orientale* is referred to as *M. armenum*. The genus is monotypic, and this plant has also been known under the names of *Echium orientale* and *Onosma megalospermum*. It is certainly a stately plant, and produces a long succession of flowers. W. I.

SWEET PEAS.—The enclosed Sweet Peas are some of my new winter-flowering strain. They flower profusely throughout the winter. We have more than 40 different shades that have originated in these nurseries. C. Engelmann, Saffron Walden. [These appear to be of the same type as were first set us in April, 1904 by Mr. Clarke (gr. to Lady Rowden), who obtained the seeds from a gentleman in Algeria.—Ed.]

from which reliable intelligence may be obtained. Formerly, when I wanted to gain any particular information regarding park work, I have found great difficulty in selecting any work from which such information could be had, although I have frequented some of London's largest libraries in search of it. This shows how handicapped those subordinate employees in the public parks have been who are endeavouring to qualify for promotion. We have plenty of opportunities of gaining a thorough knowledge of practical gardening, but with such matters as I anticipate Mr. Pettigrew, and I hope others, will deal with, no opportunities have occurred until the present. Now they are forthcoming, they will be appreciated by myself, and, I have good reasons for believing, by many others also. *Puisse*. [Please do your part also.—Ed.]

COLD STORAGE.—The Canadian Government, in order to encourage the provision of cold storage, is reported in the *Times* of December 31 to have arranged a scheme whereby builders of



FIG. 17.—VIOLET CULTURE IN FRAMES AT COKETHORPE PARK.

PUBLIC-PARK MANAGEMENT.—I feel sure that many officials and their subordinates in the public parks in the United Kingdom are pleased to see that you have allotted a portion of the *Gardeners' Chronicle* for the publication of a series of articles on the details appertaining to park-management. Only those who are employed in such places have any idea of the wide experience that is necessary, and the arduous duties which the position of superintendent entails on those who fill such positions. The motto Mr. Pettigrew has cited, "Efficiency with Economy," is undoubtedly one that appeals to the majority of those who are responsible for the proper maintenance of our public parks, and those directly concerned with the carrying out of such practices that will end in such a result being achieved. In the articles which Mr. Pettigrew is contributing, those who are endeavouring to fit themselves for filling such positions as park superintendent, foreman, etc., will find much valuable information. I am an employee in one of London's largest parks, and so belong to the above-mentioned class. I have a pressing need for a publication of some kind or other

new cold storage warehouses during the present fiscal year will receive grants in aid, amounting to 10 per cent. of the cost, and further grants in future years amounting in the aggregate to 30 per cent. of the capital invested. When will our own Government encourage fruit growers and farmers in a similar manner? Cold storage houses in all our principal towns would be an inestimable boon to the above industries, and not less so to all private gardeners within reach of them, and would probably have a beneficial effect on the general health of the inhabitants. W. H. Divers.

STORM IN CO. MAYO.—It may interest some readers of the *Gardeners' Chronicle* to hear that a real blizzard began towards evening on December 25, and snow fell during the night and continued more or less during the remaining part of the week with rather severe frost. There was quite 3 inches deep of snow, and in many places the drifts were 6 to 7 feet deep. I am told it is the most severe frost and the heaviest snowfall that have occurred here for the last 15 years. Thos. Sunnucks, Gardener to C. Scrase Dickens, Esq., Coraun, Achill, West Coast of Ireland.

BEGONIA GLOIRE DE LORRAINE RAISED FROM SEED.—In reply to *H. R.* and *A. J. W.*, p. 445, who sown seeds of both white and pink varieties, germinated on the surface of the soil in the pans in which the old plants were growing. These plants which produced the seed were suspended from a roof of a corridor during the winter months, but about the middle of January, 1906, they were taken down, and after shortening back the growths a little, they were placed in a temperature of 70-75° for the purpose of encouraging the development of basal shoots for cuttings. In the course of a few weeks we discovered seedlings germinating on the surface of the pans, from whence they were afterwards transferred, as they increased in size, to small thimble pots. I attribute the development of the fertile seeds solely to the conditions under which the plants had been grown while in the flowering stage, as in no other

phere of a temperature ranging from 60° to 70°. They were raised from cuttings last spring, have been a mass of bloom since the end of September, and promise to continue effective for two months longer. I have about 30 pods of seed in different stages of ripening, but it rather a bad time of year for seed-ripening. Does semi-starvation help to produce these female blooms, which I notice are all terminals? I hope to sow seeds by the end of the present month. As the seeds look very bright, I do not see any difficulty in raising a good batch. *H. R.*, Cardiff, asks if seed is procured otherwise than by self-fertilisation. But does any single Begonia require to be artificially fertilised except for crossing purposes? I am not very clear on that point, and should be pleased to know. I should think these flowers of Gloire de Lorraine would be easily fertilised, seeing the

he did show it up to be a serious pest; yet it was so obvious, after hearing Mr. Massee for the defence, that this mildew is not such a terrible criminal after all? Prohibition is the cry of the prosecution, but Mr. Massee showed us that where prohibition of importation is severest there is the mildew the severest also. Is it not possible that spores of this fungus can be brought across the sea in the air without the aid of host plants? If that be not so, how first came, and so widely developed simultaneously, the Potato fungus? But if Mr. Salmon rang the alarm bell to growers of Gooseberries, certainly Mr. Massee did much to calm their fears by his statements as to what remedial measures had done in checking the mildew. Here indeed lies the whole gist of the matter. One section of growers alarmed by Mr. Salmon's teaching cries aloud to the government to come and save them. Cooler heads heeding Mr. Massee's advice adopt practical measures of a remedial kind and practically stamp out the evil. *D.*

LAW NOTE.

LEGISLATION AGAINST PLANT DISEASE.

It has probably occurred to many of those interested in horticulture and agriculture to wonder why steps have not long since been provided to enable the Board of Agriculture to deal on suitable lines with the ravages of any disease likely to affect plant life. Experts will doubtless be glad therefore to hear that a Bill is now being drafted in the legal department of the Board of Agriculture for the purpose of providing the Board with the powers necessary to deal with the importation as well as the extermination of all diseases of a nature likely to spread to the detriment of plant life in this country.

It is, of course, well known that some years ago an Act was passed for the purpose of dealing with the danger arising from the *Doryphora decemlineata*, commonly called the Colorado beetle. It is now proposed to extend the provisions of this Act to other diseases of the nature above referred to, and a few notes on the subject of this Act may therefore prove of interest.

It is hoped to give more detailed particulars of the proposed Bill as soon as the formal draft has been finally settled. Meanwhile, nurserymen and market-gardeners should bear in mind that the best opportunity of influencing legislation arises while any proposed Bill is being drafted. After the Bill has once been carried into the House of Commons, it is naturally more difficult to influence one political party or the other in favour of any suggested amendment. Growers should therefore lose no time in considering very carefully whether the present opportunity should be utilised of seeking to influence, in any other respect, legislation in the direction mentioned, as the Bill will, of course, be very far reaching in its effects.

Whether the Board of Agriculture will apply the machinery thus to be provided to dealing with the question of the American Gooseberry-mildew yet remains to be seen, but parties on every side will presumably be unanimous in agreeing that legal machinery against disease of any kind ought to be created without waiting until an epidemic has actually broken out. There is no doubt that the action contemplated by the Board of Agriculture is to be taken in consequence of a widespread feeling in the trade on this point, and whatever may have been the history of past events, it certainly seems only fair to the Board to note that, at the present time, there seems to be a real desire on the part of the Board to keep in touch with matters on which the trade is found to be more or less unanimous. An Act to amend the present Market-Gardeners' Compensation Act will shortly be brought forward, and the opportunity will then be seized of extending to nurserymen various benefits already enjoyed by market-gardeners under the existing Acts. Again, we now find that in response to the demand for legislation against plant disease generally, the necessary powers are to be promptly applied for. Those who are anxious to see legislative measures in more than one direction passed for the benefit of the trade, should, instead of crying out about the apathy of officialdom, continue their efforts to combine unanimously in bringing their requirements before those officials who are deputed to pay special attention to their interests. *H. Morgan Veitch.*



FIG. 18.—BEGONIA GLOIRE DE LORRAINE AT CLEVELY, SOME OF WHICH WERE RAISED FROM SEEDS.

instance did I discover a single seedling germinating in any of the pans of other plants of this Begonia, although others were saved for supplying cuttings, but these had been flowered under different conditions than those in the corridor. The plants that produced the seedlings had been kept in a semi-starved, dry, arid condition in the corridor, in which the temperature rarely exceeded 50-55°, and during the time that the Chrysanthemums were occupying the structure, a very plentiful supply of ventilation was provided. Under these conditions is it not possible that the pollen may have become more

readily distributed? The plants, owing to their being suspended overhead with Chrysanthemums beneath them, were kept very much drier at their roots than those we have growing in the warmer structure. Since the calendar containing this information was published, I have had a photograph of the house taken, which is 40 feet long, but unfortunately it does not lend itself well to the camera, fig. 18. The seedlings are those immediately on the end of the stage in the photo. I shall be pleased to hear from other correspondents their experience in the matter of Begonia Gloire de Lorraine seedling. *Benjamin Cromwell, Cleveley Gardens, Allerton, Liverpool.*

I have grown this Begonia more or less well for several years, but have never raised any seed pods till this year. The plants are growing in 5-inch pots hanging from shelves in a span-roofed orchid-house in a moist atmos-

clusters of male blooms there are to one female. *W. N., Spaxton, Bridgwater.*

WATER TANKS.—During bad weather in winter, when work in the out-door garden is partially suspended, some of the available labour from this source may be utilised in cleaning out the water tanks in the plant and fruit houses. At this season such receptacles usually contain a large amount of black sediment, which is washed from the roof glass from time to time. The plant-grower will realise how much cleaner his plants will be, and also the woodwork of the structures, if syringings are always done with clean water. *B. Cromwell.*

THE GOOSEBERRY-MILDEW.—In regard to Mr. Salmon's lecture at the R.H.S. meeting on Tuesday last, Mr. Salmon merits all thanks for the able way in which he may be said to have opened the case as prosecutor of the Gooseberry-mildew, and

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 8.—The first meeting of this society in the new year was held on this date, a moderate display of flowers and fruits being staged. Among the exhibits were several fine groups of Orchids, greenhouse flowers, stove plants, Ferns, Alpines, &c., and three large collections of fruits, principally of Apples and Pears. The FLORAL COMMITTEE had no novelty worthy of an award brought to its notice, but the ORCHID COMMITTEE granted one First-Class Certificate and four Awards of Merit, while the FRUIT & VEGETABLE COMMITTEE gave an Award of Merit to a Pear which was sent in the first instance for naming, and in which the Committee recognised a new variety of much merit. Although the weather was exceptionally fine, the attendance of the public was meagre. At the meeting held in the afternoon a very large number of new Fellows were added to the roll of the Society, and a lecture on the American Gooseberry-mildew was delivered by Mr. Salmon, which evoked an interesting discussion.

Floral Committee.

Present: H. B. May, Esq. (in the chair); and Messrs. G. Paul, J. Walker, T. W. Turner, J. Green, Geo. Nicholson, G. Reuthe, C. E. Shea, C. Jeffries, W. Cuthbertson, C. E. Pearson, W. P. Thompson, E. H. Jenkins, J. Bennett Pöe, W. J. James, Wm. Howe, John Jennings, J. F. McLeod, C. R. Fielder, C. Blick, R. Wallace, Herbert Cutbush, Arthur R. Goodwin, Chas. Dixon, and C. T. Drury.

Rev. H. BUCKSTON, Sutton Hall, Etwell, Derby (gr. Mr. A. Shambrook), displayed a large number of Cyclamen, all of which were plentifully flowered, and of vigorous growth, not quite so compact in habit as is sometimes seen, but collectively a very pleasing group. The colours were representative of all the shades found in this useful winter-flowering subject. (Silver Flora Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, N., also exhibited a number of these plants, among which was the variety Low's Salmon, a very compact, free-flowering kind, with clear, salmon-tinted petals. Messrs. HUGH LOW also staged a number of Carnations of the American or winter-flowering type, and plants of *Rondeletia speciosa*. (Silver Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, exhibited spikes of the blue *Coleus thyrsoideus*, a batch of *Jacobinia chrysostephana*, *Begonia Winter Cheer*, and a few other greenhouse flowering plants, and, as a separate exhibit, a semi-circular arranged group of the new *Buddleia asiatica*, carrying its slender panicles of creamy-white flowers on the ends of the long growth. Included in this exhibit was a plant of *Hamamelis arborea*, and another of *Camellia Sasanqua*, both in flower. (Silver Flora Medal.)

Another group of this new *Buddleia* was shown by Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, and among these plants were interspersed ornamental-leaved hardy shrubs, such as *Eleagnus*, *Euonymus*, *Aucuba*, *Garrya*, &c.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed several pyramidal-trained plants of *Begonias Gloire de Lorraine* and *Turnford Hall*, and sprays of *Moschosma riparium* in pretty glass vases.

A batch of the scarlet *Euphorbia jacquiniiflora*, shown by Lord ALDENHAM, Elstree (gr. Mr. Ed. Beckett), formed one of the brightest displays in the hall. The individual flowers were remarkably well coloured, but the sprays were not of exceptional length. (Silver Banksian Medal.)

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, showed many handsome Ferns, including the beautiful *Nephrolepis Pierstoni* elegantissima and the rare *Polypodium irioides ramocristatum*. Specimens of *Adiantum Farleyense* were of exceptional merit. Adjoining the Ferns were *Begonias*, *Erica melanthera*, and small but well-berried examples of *Aucuba vera*. (Silver-Gilt Banksian Medal.)

Messrs. WM. BULL & SON, King's Road, Chelsea, staged a number of ornamental-leaved stove and greenhouse plants.

A new *Chrysanthemum*, a pink sport from the

white Mrs. J. Thompson, was shown by Mr. H. WHATELEY, Spring Gardens, Isleworth. The blooms were remarkably fresh, considering the lateness of the season for these flowers, and the variety should prove an acquisition for market purposes.

Messrs. WM. CUTBUSH & SONS, Highgate, London, N., showed seasonable alpine plants in flower, Irises, *Sternbergia*, *Tussilago fragrans*, *Adonis amurensis*, &c., and a number of early-flowering shrubs, including *Hamamelis Zuccarini*, *Jasminum nudiflorum*, *Prunus triloba*, *Daphne Mezereum album*, &c. Messrs. CUTBUSH also contributed an excellent display of Carnations. (Silver Flora Medal.)

Alpine plants were also shown by Messrs. J. PEED & SON, Norwood; Misses HOPKINS, Hill-side Nursery, Barming, near Maidstone; and Mr. REUTHE, Keston, Kent.

Some very heavily-berried sprays of *Pernettya mucronata* were shown by A. KINGSMILL, Esq., Harrow Weald, Middlesex.

Mr. FRANK GALESWORTHY, Green Lane Farm, Chertsey, Surrey, displayed a number of paintings of floral subjects. (Silver Banksian Medal.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshay, H. Little, W. Boxall, Francis Wellesley, W. Bolton, H. G. Morris, H. A. Tracy, H. G. Alexander, W. H. Young, J. Charlesworth, W. Cobb, H. T. Pitt, A. Dye, A. A. McBean, F. M. Ogilvie, T. W. Bond, and W. A. Bilney.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, staged a fine group, in which their hybrid Orchids were displayed, a very remarkable new plant, *Odontioda Bradshawia* × (see Awards), forming the centre of attraction. In the group several plants of *Cattleya Octave Doin* were very beautiful; and the Heaton strain of *Odontoglossum Rolfeae* excellent and varied in colour. Also *O. Othello*, the elegant *O. Phoebe*, with a magnificent spike of pretty, white flowers spotted with dark red; varieties of *Brasso-Cattleya*, *Laelio-Cattleya Andromeda*, *L. C. Lydia* and other hybrid *Cattleyas* and *Laelio-Cattleyas*. The species embraced several of the handsome and fragrant *Trichopilia* *suavis*, a nicely-flowered plant of the rare *Trichopilia brevis*, with yellow sepals and petals barred with red, and showy white lip. *Laelia Gouldiana*, *Saccolabium giganteum*, &c. (Silver Flora Medal.)

Major G. L. HOLFORD, C.I.E., C.V.O., West-nortbirt, Tetbury (gr. Mr. H. G. Alexander), showed a selection of new hybrid Orchids, for two of which see Awards. It included *Brasso-Cattleya Madame Hye*, Westonbirt variety (*C. Harrisoniana* × *B. Digbyana*), an improvement on that for which he received an Award of Merit at the Holland House show; *Cypripedium Vandyck* (*C. hirsutissimum* hybrid × *Mons. de Curte*), with dark rose-coloured dorsal sepal edged with white; *C. aureum* *Edippe*, with a purple dorsal sepal having the upper third white; *C. aureum* *Hyeanaum*, and *C. illustre* (*Lathamianum* × *nitens*).

FRANCIS WELLESLEY, Esq., Westfield, Woking, showed *Cypripedium Aeson giganteum* in splendid condition, the large and beautifully-marked flower being of fine substance; *C. insigne* *Laura*, a heavily-blotched and brightly-coloured form; *C. Minnie*, a charming flower with the large white dorsal sepal spotted with rose; *C. Niobe-Leeanum*, which is good in colour and size; *C. tonsum*, Westfield variety, and *C. callosum* *giganteum*.

Messrs. SANDER & SONS, St. Albans, showed three fine plants of their best strain of *Vanda Sanderiana* with very fine flowers.

Messrs. JAS. CYPHER & SON, Cheltenham, were awarded a Silver Banksian Medal for an excellent group in which good forms of *Cypripedium Leeanum*, *C. insigne*, and some of the newer hybrids were represented. *Cypripedium vil-exul* was a finely-formed flower, *C. Charlesianum*, Cypher's variety, a large yellow flower with finely spotted dorsal sepal; *C. Fairrieanum* and a few other species were also included, and the rare white *Dendrobium aqueum*, the elegant *D. Ethel*, some *Dendrobium Phalaenopsis*; pretty specimens of the yellow *Masdevallia Hinckiana* varieties of *Laelia anceps*, and others.

Messrs. HUGH LOW & CO., Enfield, staged a group in which *Laelia autumnalis* and *L. a. alba*,

Cypripedium Maudiae, *C. Leeanum* *Clinkaberry-anum*, *C. aureum* *virginale*, the prettily-marked *C. Adrastus Marieae*, the greenish-yellow *C. insigne* *Lucianum* with three flowers, *C. i. Sanderæ* five flowers; a good, nearly pure white *Dendrobium Phalaenopsis*, *Warszewiczella velata*, and the finely-shaped and distinct *Cypripedium insigne* "E. J. Seymour."

Messrs. HEATH & SON, Cheltenham, staged a selection of hybrid *Cypripediums* including the true *C. Swinburnei magnificum*, *C. Mons. de Curte*, *C. Leeanum*, &c. Also *Cattleya Percivaliana*, and a home-raised hybrid between *Cattleya Harrisoniana* and *C. Walkeriana* and resembling *C. O'Brieniana*.

Messrs. J. W. MOORE, LTD., Rawdon, Leeds, staged a small group of *Cypripediums*, including *Cypripedium Fowlerianum magnificum* of good shape and dark colour; *C. Clío giganteum*, *C. Black Empress*, a very dark-coloured flower; *C. Calypso*, *C. Deedmanianum*, &c.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed *Cypripedium Ernest Read* (*Wm. Matthews* × *callosum* *Sanderæ*), a very large flower, broad in all its parts, whitish, tinged with rose, the dorsal sepal having emerald green lines.

R. I. MEASURES, Esq., Camberwell (gr. Mr. Smith), showed the pretty *Pleurothallis punctulata* and some interesting cut spikes of Orchids.

M. MAURICE MERTENS, Mont St. Amand, Ghent, showed *Cypripedium Lathamianum* *Rex*; the greenish-yellow *C. insigne* *Hyeanaum* and other hybrids; *Miltonia Bleuana grandiflora*, *Brasso-Cattleya Digbyana-Mendeli*, *Cattleya Trianae delicata* and a form with dark rose-coloured lip.

M. JULES HYE DE CROM, Ghent (gr. Mr. Coen), sent *Cypripedium Lathamianum imperatum*, a magnificent, large, and finely-formed flower.

Messrs. LINDEN, Brussels, showed two very handsome varieties of *Odontoglossum crispum* raised by crossing fine blotched forms, and of the same class as those illustrated in the *Gardeners' Chronicle*, December 22, pp. 418-9. *O. crispum coloratum*, the larger of the two, had the fine broad-petalled flowers almost entirely of a rich purplish red with white margin and slight white lines dividing the colour; the *O. crispum emminatum* had rather smaller and darker flowers, and both had the usual yellow and dark-lined *O. crispum* crest.

Mr. H. A. TRACEY, Twickenham, showed *Cypripedium xanthinum* (*Leeanum* × *insigne* *Furzeanaum*). A good yellow flower profusely spotted on the dorsal sepal and petals with chocolate colour, the spotting on the lower half of the dorsal sepal being on a pale-green ground.

J. FORSTER ALCOCK, Esq., Exhims, Northchurch, showed *Cypripedium Chapmanii*, Exhims variety, large and densely spotted with purple; and *C. Charlesworthii*, Exhims variety.

REGINALD FARRER, Esq., Clapham, Lancashire, sent *Cypripedium Phædra*, Ingleborough variety.

J. WILSON POTTER, Esq., Elmwood, Croydon, sent a cross between *Laelia cinnabarina* and *L. Jongheana* with a spike of orange-coloured flowers near to *L. Gwennie*.

J. H. CRAVEN, Esq., Beeches, Keighley (gr. Mr. Corney), sent *Cypripedium Helen II.*, Craven's variety (*insigne* *Sanderæ* × *bellatulum album*). Flowers white, spotted with purple. Lip sulphur-yellow.

GURNEY WILSON, Esq., Glenthorne, Haywards Heath, sent *Odontoglossum Rossii* *Wilsoni*, a pretty form with dark, reddish spotting on the sepals.

DE B. CRAWSHAY, Esq., Rosefield, Seven-oaks (gr. Mr. Stables), sent *Odontoglossum crispum* *Poultoni*, finely grown and flowered, the blooms being clear white, blotched with purple.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontioda Bradshawia × (*Cochlioda Noeliana* × *Odontoglossum crispum*) from Messrs. CHARLESWORTH & CO., Heaton, Bradford. A truly great acquisition and a fitting companion to the very beautiful *C. Vuylstekeae*. The plant is of neat habit, and bore a spike of thirteen flowers produced like those of *O. crispum*, but of an uniform cinnabar-scarlet, with a slight shade of the white ground colour being traceable beneath the bright surface colour. The seg-

ments are equal; the lip having a yellow crest with a scarlet blotch in front and a similar colour at the apex. The raisers may be congratulated on their success, for few hybrids are of such distinct characters.

AWARDS OF MERIT.

Odontoglossum Alicea (Edwardii \times *crispum* Harryanum) from J. GURNEY FOWLER, Esq., Glebelands, South Woodford. A near ally of *O. Thompsonianum* (Edwardii \times *crispum*) illustrated in the *Gardeners' Chronicle*, May 6, p. 285, but lighter in colour, the claret-coloured blotches being broken by rose-coloured lines. The slender, straggling spike bore several flowers, the ground colour being pale lilac, but the greater part of the surface occupied by claret-coloured blotches, crest of lip yellow (see fig. 15, p. 26).

Brasso-Cattleya Pluto (*C. granulosa* \times *B. Digbyana*) from Major G. L. HOLFORD, C.I.E., (V.O. (gr. Mr. Alexander). A very remarkable hybrid, with much of the form of *C. granulosa*, but amplified and with the front and side lobes of the lip fringed. Sepals and petals pale green. Lip white, with purple lines from the base.

Cattleya Maggie Raphael alba (*Triana alba* \times *Dowiana aurea*) from Major G. L. HOLFORD. A pretty flower with white sepals and petals, and rose-coloured lip with gold lines.

Phaio-Calanthe Colmanii (*Phaius Norman* \times *Calanthe Regneri Stevensi*) from JEREMIAH COLMAN, Esq., Gatton Park, Reigate (gr. Mr. W. P. Bound). A fine white variety, with some purple lines at the base of the lip, and the most desirable of *Phaio-Calanthes*. The plant opened on January 1, the day on which Mr. Colman's son, Jeremiah Colman, attained the age of twenty-one, and it was named to commemorate the occasion. It was raised at Gatton Park.

Fruit and Vegetable Committee.

Present: G. Bunyard, Esq. (chairman); and Messrs. W. Bates, S. Mortimer, J. Cheal, A. Dean, W. Pope, E. Beckett, H. Parr, R. Lye, G. Kelf, H. J. Wright, A. R. Allan, J. Davis, J. Lyne, G. Reynolds, J. McIndoe, J. Jacques, Chas. Foster, Jas. Vert, O. Thomas, W. Poupert, and A. H. Pearson.

As is usual, several varieties of Apples were presented for awards, and more than one new variety of Potato, but none was adjudged worthy of distinction. A Cultural Commendation was voted a very fine sample of Glou Morceau Pear, shown by Mr. JOHN CROOK, Forde Abbey Gardens, Chard, and, as stated above, an Award of Merit was granted to a Pear, a description of which is given below.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed some remarkably good Apples, in all 110 distinct varieties. They were exceptionally well coloured, and had been well preserved. As is to be expected in a collection of so many kinds, some of the varieties, as Worcester Pearmain, Cellini, &c., were quite out of season, but the best late-keeping kinds were freely represented, a selection of the choicer being Lemon Pippin, Charles Ross, Allington Pippin, Baumann's Red Winter Reinette, and the new King Edward VII. (Silver-Gilt Knightian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, showed a collection of about 60 dishes of Apples arranged in a setting of Smilax sprays. The fruits were medium-sized examples, and representative of most of the best kinds now in season, such as Beauty of Kent, Blue Pearmain (a very fine late-keeping Apple), Standard Bearer (a large conical dessert Apple of very promising appearance), Bess Fool, Grange Pearmain, Winter Peach (a fruit of delicate skin), &c. (Silver Knightian Medal.)

Sir WEETMAN PEARSON, Bart., M.P., Pad-Jockhurst, Worth, Sussex (gr. Mr. A. B. Wadds), showed 32 dishes of Apples and Pears, and several bunches of Grapes. The Apples were principally choice dessert varieties, and among the Pears we noticed good fruits of Vicar of Winkfield, Glou Morceau, and Doyenné du Comice, the last-named having the appearance of being capable of keeping till a still later date. (Silver Banksian Medal.)

AWARD OF MERIT.

Pear Blickling.—As stated, this variety was sent for naming, but, as it was an unknown variety and of exceptional merit, the committee

gave it this name, and an Award of Merit. It was sent by Mr. WILLIAM ALLAN, Gunton Park Gardens, Norwich, who discovered it about 10 years ago growing in the gardens at Blickling Hall. He described the tree as a strong grower and a heavy cropper, and the fruits of delicious flavour, which opinion was fully confirmed on tasting. The fruits may be described as a late Doyenné du Comice, and the only difference that could be noted between the two varieties is that the one under notice has its stalk set in a distinct cavity. The flesh is white, melting, and juicy, with just a trace of grittiness.

LINNEAN SOCIETY.

DECEMBER 20.—Lieut.-Col. Prain, F.R.S., vice-president, in the chair.

Mr. WILFRED MARK WEBB, F.L.S., exhibited two specimens of albino woodlice, *Oniscus asellus*, Linn. Prof. Poulton enquired whether either specimen had recently moulted, which would account for the absence of colour. Mr. Webb, in reply, was able to state that that was not the case in one, at least, of the specimens shown.

Mr. N. E. BROWN, A.L.S., exhibited a photograph and dried specimens of *Fockea capensis*, Endlicher, a plant of considerable interest on account of its great rarity and its apparently great longevity. It was originally described and figured by N. J. Jacquin, a hundred years ago, in his *Fragmenta Botanica*, p. 31, t. 34. f. 5, as *Cynanchum crispum*, from a plant which had been introduced from South Africa and cultivated in the Imperial Garden at Schönbrunn. In 1838, Endlicher, in his *Iconographia Generum Plantarum*, refigured the plant and generically separated it from *Cynanchum* on account of its remarkable structure. This self-same individual plant (from which both the above-mentioned figures were made) has been in cultivation at Schönbrunn from Jacquin's time until now, and is the only example of the species known, since Dr. A. Zahlbruckner states that all attempts to propagate it have failed, and no collector appears to have refound it, the only dried specimen in existence, so far as known, being the one exhibited. The living plant was exhibited at the Botanical Congress held at Vienna in 1905, and in the report of that congress, p. 77, is a note concerning it, where it is stated that the age of the plant is probably about 150 years. But when Jacquin described the plant 100 years ago he stated that the tuber was about 1 foot long and 6 inches thick; at the present time, from calculations I have made from the photograph of the plant by comparing the length of the largest leaves on the dried specimen with those of the photograph, I find that the tuber is about 7½ inches thick and stands about 12½ inches above the ground. As this small increase in size during 100 years has been obtained under the conditions of cultivation, where the plant would obtain more moisture and be likely to grow more rapidly than in the very dry climate of its natural habitat, it would appear conclusive that its growth is extremely slow, and that the actual age of the individual in question is probably much more than 150 years. Burchell, in a note with a dried specimen of the very closely-allied *F. glabra*, Decaisne, states that the tuber is sometimes as much as 2 feet in diameter, and, if as slow-growing as *F. capensis*, this would imply that the plant must attain an age of several centuries. None of the species of *Fockea* appears to be common, and as the tubers are eaten by the natives and do not appear to produce fruit freely, it is possible that they may be approaching extinction.

Two other interesting plants are *Babiana spathacea*, Ker, and *Eriosphæra Oculus-cati*, Less., which are exhibited further to illustrate how very rare or very local some of the South African plants are, since neither of these two has been collected by any botanical traveller since Thunberg found them in 1774, until these specimens were gathered. The *Eriosphæra* was originally described as *Gnaphalium Oculus-cati*, Linn. f., Suppl. 364, from a specimen collected by Sparrman; a specimen of it in Thunberg's herbarium, upon which Lessing founded the genus *Eriosphæra*, is figured by Harvey in his *Thesaurus Capensis*, vol. ii. p. 30, t. 149.

Dr. A. B. RENDLE presented a report on the botanical collections made by Dr. W. A. Cunningham in Lakes Nyasa, Tanganyika, and the

Victoria Nyanza, 1904-5. Dr. Cunningham spent about three weeks on and about Lake Nyasa, nearly nine months at Lake Tanganyika, and less than a fortnight on the West of the Victoria Nyanza. His object was to make as complete a collection as possible of the plants and animals, especially from Lake Tanganyika, with a view to solving the "Tanganyika problem," and of ascertaining whether the fauna and flora of this lake indicate a former marine connection. As illustrated by a good series of specimens laid on the table, the flowering-plants, fern-allies, and Characeæ, numbering about 45 species, were, for the most part, well-known and widely-distributed forms, with others restricted to Tropical or Subtropical Africa, such as *Ottelia*, *Boottia scabra*, and species of *Utricularia*. In no case was there any suggestion of marine conditions, either past or present, in the representatives of the flora.

The plankton and freshwater Algæ, of which an account was given by Mr. G. S. West, yielded remarkably rich results, due partly, no doubt, to the paucity of our previous knowledge of the microscopic flora of these lakes, especially in the case of Tanganyika. Mr. West's list contains about 400 species, a large proportion of which are new, including one new genus of *Palmellaceæ*. A few species from Tanganyika showed a striking affinity with marine forms, indicating that at some period the water of this lake had a considerable degree of salinity. But, as Dr. Cunningham explained, this did not involve a previous marine connection, but might be explained by an increase in saline matter in the water due to the damming of the outlet from the lake. This damming was perhaps a periodical occurrence, since Stanley, 30 years ago, described the lake as with no outlet, while a few years later Mr. Hore, visiting the same spot as Stanley, found the water rushing through the present outlet towards the Congo.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 23.—*Committee present:* Messrs. Ashworth, Thorp, Sander, Shill, Warburton, Cypher, Ward, Parker, P. Smith, Leemann, and Weathers (hon. sec.). There was a capital display of plants at this meeting. E. ASHWORTH, Esq., Harefield Hall, Wilmslow, Cheshire, staged a charming group of *Cypripediums*, many choice varieties and hybrids being represented. (Silver Gilt Medal.)

A. WARBURTON, Esq., Vine House, Haslingden, Lancs., also contributed a goodly display of plants. A noticeable example in his group was a fine form of *Odontoglossum Uro-Skinneri* called Vine House var.; this received a First Class Certificate. A similar award was granted to *Brasso-Cattleya* \times Warburtoni, a beautiful hybrid between *Brassavola Digbyana* \times *Cattleya Schroderæ* var. *alba*. The flower is almost pure white, and intermediate in character between its parents. From the same collection *Cypripedium* \times Ville de Paris, C. insigne var. Sadleri, and *Cypripedium* \times Amy Moore received Awards of Merit.

S. GRATRUX, Esq., Whalley Range, received Awards of Merit for *Cypripedium* \times General Stossel, C. insigne var. *Holfordianum* and C. insigne var. "Sheila."

Messrs. KEELING & SONS, Bradford, received an Award of Merit for *Cypripedium* \times Hector, a cross between C. Sallieri and C. nitens magnificum.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, exhibited a new and interesting hybrid in *Odontioda* \times *heatonense* var. *St. Vincent*. This plant is a cross between *Cochlidia sanguinea* and *Odontoglossum cirrhosum*, and is a pretty addition to the family.

J. H. CRAVEN, Esq., Keighley, Yorks, gained a First Class Certificate for *Cypripedium* \times *Archimedes* var. *eboraicum*, and an Award of Merit for C. *Archimedes*, Craven's var.

Messrs. CYPHER & SONS, Cheltenham, were awarded a Silver Medal for a choice group of plants, in which a fine specimen of *Cypripedium* \times *Leeanum* with 30 blooms was prominent. P. W.

TRADE NOTICE.

R. O. MEYER, LTD.—Mr. Alfred Poppe has retired from the joint management of the London House in order to take up heating work abroad, and Mr. Paul Krebs will act as sole manager of the London department in future.

Obituary.

R. B. CATER.—We regret to have to record the death, in his 75th year, of this gentleman, who was well known in Bath and whose name is familiar to Rosarians and Chrysanthemum growers. Of late years no exhibition in Bath was complete without his groups. He was one of the foundation members of the National Rose Society, and a Rose brought out in 1898 by Messrs. Cooling was named after him. He was President of the Bath branch of the Gardeners' Royal Benevolent Institution and was most active in business matters connected with the city.

JOHN BYERS.—We are informed of the death of this gardener at Harrogate on December 19, 1906. Deceased, who was born at Stokesley, was 85 years of age. He was apprenticed to gardening at Studley Royal, Ripon, then in the possession of Miss Lawrence. As improver he served under his father in the gardens of Sir Joseph Pease at Darlington. After this he held the position of head gardener to Squire Bethell, at Rise, near Beverley; to Mr. Shuster at Sydenham, whose garden occupied the site of the present Crystal Palace, where he remained until the Palace was half built; to the Lord Chancellor of Ireland, Brady, with whom he remained for 14 years, and to Colonel Tennyson, Kiltonan Castle, co. Roscommon, Ireland, with which gentleman he remained for seven years. For the past 27 years Mr. Byers resided at Harrogate. He was a frequent contributor to the columns of the *Gardeners' Chronicle*.

ANSWERS TO CORRESPONDENTS.

BOOKS: *Jacobi.* We are not aware of any special value attaching to "Every man his own gardener (1784)." We expect a second-hand book-seller would put a very low price upon it.

CATERPILLAR AT ROOTS OF ROSE: *J. S. E.* The larva of one of the noctuid moths, but not a recognised pest. It was probably introduced in the potting material (turf). In selecting the turf from the stack care should be taken to avoid using that near to the outside of the stack where there may be living roots of grasses, as it is in such places that various insects or their larvae are found.

CURRENT-BUDS FOR INSPECTION: *Miss M. P. R.* There is no trace of the Currant-bud mite in the specimens you send us.

DENDROBIUM INFUNDIBULUM: *Correspondent.* The parts of an Orchid flower are (except in *Cypripediums*) arranged in three's, but it frequently happens that from some cause or other the parts are disposed in alternating pairs as in your flower. It is interesting, but of no special value.

DESIDERATUM BOILER: *A. B.* We have not had any experience in the working of the Desideratum boiler, and therefore cannot say whether it is an improvement on the Loughborough heating apparatus or not. You do not furnish us with particulars as to the manner in which your boiler and hot-water pipes are fixed, so as to enable us to tell you the cause of its not acting properly, further than that the boiler "bangs off" when stoking a good fire. This noise may be attributed to faulty circulation of the hot water in boiler and pipes, caused through neglect to secure a sufficient rise in boiler and flow-pipes when fixing same in position (see p. 436 in last volume). Faulty stoking may also be responsible for such noises. If a body of fire is kept near to the front of furnace, where cold water enters the boiler with none at the back, as is sometimes the case, bangs will occur in the first part of the boiler as described in your note. Keep the fire well to the back of the furnace, leaving a clear space of about nine inches between the body of fire and the furnace door.

ELMS: *J. Cross.* In addition to the common English Elm the undermentioned varieties may be included: *Ulmus campestris latifolia variegata*, *U. c. sarniensis* (Jersey), *U. c. antarctica aurea* (*U. Rosseelsii*), *U. c. Louis Van Houtte*, *U. glabra cornubiensis* (Cornish), *U. g. vegeta* (Huntingdon), *U. montana Dovei*, and *U. m. fastigiata aurea* (*U. Dampieri Wredei*).

EMIGRANT TO BRITISH COLUMBIA: *A. G.* This district is the extreme western portion of Canada. You will obtain all the information

you require from the Canadian Offices, Parliament Street, Whitehall. See the articles on fruit growing in Canada, p. 189 of our issue for September 15, 1906, and December 8, 1906, p. 384.

FLORA OF VENEZUELA: *Correspondent.* We cannot find that Mr. Rusby has published any separate work on the subject.

GAS-LIQUID FOR TOMATO SOIL: *S. G. R.* Gas-liquid is not at all the same product as gas-lime, neither in its chemical composition nor in its manurial effects. The chief properties of gas-lime are about 88 per cent. of lime and 28 per cent. of sulphuric acid. Gas-liquid is valued especially for its compounds of ammonia, being the material from which sulphate of ammonia is manufactured. It varies very much in composition, sometimes containing large quantities of valuable material, sometimes only very little. It contains no lime. Gas-liquid is not to be recommended for Tomato soils, because the ammonia would cause the plants to grow much too rank; there would be an over luxuriance of foliage and stem and but little fruitage. Gas-liquid answers very well for moss-infested lawns. In this case it should be diluted with five or six times its weight of water. Also it may be used with the same amount of dilution for gross-feeding leafy plants such as the Cabbage family.

GAS TAR ON HOT-WATER PIPES: *Miss M. P. R.* You should have coated the pipes with a composition of lamp black and grease, but now the mischief has been done your better plan will be to wait until the fumes pass off. If you remove all the plants, the tar could be burned off by means of a blow-lamp such as is used by painters for removing paint.

LILY OF THE VALLEY DISEASED: *J. P.* The plants are badly affected with the disease known as Botrytis galanthina. You can do nothing but burn the infected stock. Before growing these plants in the same structure again, you must cleanse it and syringe it well with some fungicide such as permanganate of potash (Condry's fluid), or a weak solution of carbolic acid.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in this issue are requested to be so good as to consult the following numbers.*

FRUITS: *A. J. C.* 1, Northern Spy; 2, Royal d'Angleterre; 3, French Crab; 4, Catillac.—*A. Price.* Lord Lennox.—*U. M.* 1, Nonsuch Paradise; 2, Niton House; 3, Winter Hawthornden; 4, Calville St. Sauveur; 5, Round Winter Nonsuch. The Grape is Mrs. Pince's Black Muscat.—*Old Reader.* 1, Van Mons Léon Leclerc; 4, Decayed; 5, Osterley Pippin; 6, Tower of Glamis; 9, Ribston Pearmain; 7, Harvey's Defiance; 8, Winter Strawberry; 12, Hanwell Souring; 10, Dredge's Fame; 13, Small's Admirable.

PLANTS: *A. R. A.* 1, *Oncidium raniferum*; 2, *Stelis micrantha*; 3, *Masdevallia nidifica*; 4, *Pleurothallis rubens*; 5, *Odontoglossum Wallisii*; 6, *Ada aurantiaca*.—*V. T.* 1, *Pteris longifolia*; 2, *Pteris hastata*; 3, *Selaginella Wildenovi*; 4, *Selaginella laevigata*; 5, *Adiantum concinnum*.—*C. E. F.* *Oncidium tetrapetalum* (the white-lipped) and *Seraphyta multiflora*.—*F. U.* *Zygopetalum Mackaii*.—*A. J. L.* *Asplenium bulbiferum*.—*Sandown.* X., Portugal Laurel, *Cerasus lusitanica*; Y., not recognised, if grown under glass probably *Stenotaphrum Americanum* variegated variety; Z., *Euonymus japonicus* var.

PLANT STAGING IN GREENHOUSES: *J. H.* An open trellis staging is preferable to one that is closed with slates and covered with shingle, inasmuch as the air can circulate more freely amongst the pots, and the woodwork of the stage will not

decay so soon as if it were covered with the slates and shingle. For Fern-growing it is necessary to arrange a staging that will provide a moister base than that afforded by the open trellis. For bedding plants, growing in heated frames, a base made from cinder ashes is most suitable, provided the frame is not so deep as to cause the plants to be thrown too far below the glass, otherwise growth would be weak. A base of cinder ashes is more helpful to the well-doing of the plants than a staging, whether composed of slate or wood.

SCORCHING OF MELONS: *J. H.* It is an unusual occurrence for Melons in a green state to get scorched by the sun, but more unusual still for them to sustain injury in this way when the fruits are approaching maturity. The cause is due to imperfect ventilation and neglecting to admit sufficient air early on bright, sunny mornings; or you may have closed the houses too early in the afternoon without distributing plenty of moisture in the house at the same time. Admit a little fresh air to the structure in which your Melons are growing when the thermometer registers between 75° and 80° of heat in the morning, afterwards increasing and decreasing the amount then given according to the weather out of doors. An atmospheric temperature of 85° to 90° should be aimed at between the hours of say, 9.30 in the morning until closing time in the afternoon. Closing time may range from 3.30 in the afternoon from April to the end of May, to 4.30 p.m. in July and August, and the temperature may then safely be allowed to run up to 95° or 100° with an abundance of moisture being distributed in the house when the fruits are swelling. If an atmosphere devoid of moisture is allowed to rise to a heat of 90° or 95° in the morning before admitting fresh air to the house, pit, or frame, the fruit, if fully exposed to the sun, is likely to get scorched, more especially should the plants happen to be rather dry at the roots at the time. It is an easy matter to tell when Melons are ripe. The fruits change from a green or light green to a golden or yellowish colour, exhibit cracks round the stems, and throw off a pleasant aroma. When this evidence of maturity is present you may safely cut your Melons. A free circulation of fresh air should be observed when the fruits are ripening that they may develop flavour, and by keeping the fruit for a day or two in a dry cupboard before eating the flavour is further improved. You should read and study our "Fruits under Glass" calendars from week to week.

SOWING ODONTOGLOSSUM SEEDS: *W. P.* One of the best cultivators of *Odontoglossums* from seeds whose methods we have inspected has obtained the very best results by sowing the seeds on the surface of the material in pots containing imported established *Odontoglossums* and suspending them in the same house. Another cultivator sowed seeds on freshly imported *Odontoglossum crispum* roots, the plants being simply placed in pots and kept firm by crocks and a little sphagnum to hold moisture. By this method he alleged that he obtained assisting micro-organisms. If some seed-pans are prepared with a convex surface over which soft cotton cloth is strained, the seeds being sown on the cloth surface, good results are secured if the material is kept uniformly moist and in an uniformly genial atmosphere.

STRIPED GOOSEBERRY: *L. M.* The berries figured on p. 280 of our issue for October 20 last were produced on a bush of the variety Warrington, and were coloured red and pale creamy white.

WARTY SWELLINGS ON VINE SHOOTS: *Red Breast.* The growth, or intumescence, as it is known by scientists, is the result of some injury which sets up an irritation in that particular spot, to which an increased flow of sap is directed for the purpose, presumably, of repairing the damage. It is a common occurrence, and is usually attributed to damage by frost.

COMMUNICATIONS RECEIVED.—W. W.—W. E. G.—H. M.—J. C. Durriss—E. S. S.—F. B.—A. N. (see address given on p. 27).—A. G. S., New Zealand.—R. G.—J. C. (many thanks for 2/6 which has been put into R.G.O.F. Collecting Box).—Scott.—J. G. Baker.—Lt. Col. Prain.—P. T. B.—S. A.—E. M.—R. G.—F. D. & Co.—A. R. B.—T. D.—L. F. W.—S. J.—T. P. C.—H. J. W.—H. L. & Co.—G. D.—J. W.—Scott.—T. J.—E. H. J.—J. D. G.—F. M.—A. D. W.—W. G.—H. S. K.—F. M. W.—H. S.—G. M.

For Market and Weather Reports see page xiv.



THE Gardeners' Chronicle

No. 1,047.—SATURDAY, January 19, 1907.

CONTENTS.

Abies religiosa ...	46	Orchid notes and gleanings—	
Agricultural exhibition at Nice ...	42	Odontioda Bradshawia x ...	36
Agriculture at Cambridge ...	40	Les Cattleys Traité de culture pratique ...	36
Asparagus manured with phosphates ...	41	Pears, late varieties of ...	37
Beech, South American, species of ...	43	Phylloxera attack in Kent ...	43
Books, notices of—		Plant nomenclature ...	42
Journal of the R.H.S.	42	Plant novelties of 1906 ...	44
Norwegian Flora ...	42	Plants injured by rats and pheasants ...	46
Potato Year Book ...	48	Poinsettias ...	45
Sweet Pea Annual ...	49	Pontederia crassipes, a pest in Australia ...	41
Begonia, Gloire de Lorraine, raised from seed ...	45	Prevention of Corruption Act ...	42
Carnations at Swan Lane Nurseries ...	38	Raspberries and Brambles ...	33
Climate and vegetation Colonial correspondence—	42	Rosary, the—	
Rose Claire Jacquier ...	38	Roses in pots ...	36
Florida garden, November and December, in my ...	45	Societies—	
Florists' flowers—		Association of Economic Biologists ...	47
Chrysanthemum sports	37	National Potato	48
Foreign correspondence—		Royal Horticultural (Scientific Committee) ...	46
Portuguese East Africa	35	Tropical culinary plants	42
Fruit, a new ...	42	Vegetables—	
Gooseberry-mildew, the American ...	34	Celeriac, the culture of	37
Ganton Park gardens ...	43	Victor Hugo ...	46
Jamaica, earthquake in	43	Violets in pots ...	46
Lily-of-the-Valley, culture of ...	46	Week's work, the—	
Missouri Botanical Garden ...	42	Flower garden, the ...	39
Monument to Comte Kerchove ...	40	Fruits under glass ...	39
Neviusia alabamensis ...	48	Hardy fruit garden ...	39
Obituary—		Kitchen garden, the ...	38
Joseph W. Oliver ...	48	Orchid houses, the ...	38
		Parks and gardens ...	38
		Plants under glass ...	39

ILLUSTRATIONS.

Flowering spray of Neviusia alabamensis ...	41
Gooseberry-mildew, the American ...	43
Neviusia alabamensis as grown at Kew Gardens (Supplementary Illustration)	
Odontioda Bradshawia x ...	36
Pear Bickling ...	34
View in Portuguese East Africa ...	35

RASPBERRIES AND BRAMBLES.

THE character by which botanists distinguish the Raspberries from the Brambles is that in the former the fruit can easily be pulled away from the long receptacle, but in the latter it adheres firm and cannot be separated.

RASPBERRIES—SPECIES.

1.—*Rubus idæus* is the common well-known European Raspberry. It is spread all through Europe in a wild state, and extends through Siberia to Japan. A list of the best cultivated forms will be found in *Nicholson's Dictionary*.

2.—*R. obtusifolius*, Willdenow; *R. Leesii*, Babington; *R. idæus*, var. *anomalus*, Arrh., is a singular variety or monstrosity of the common Raspberry, with weak, slender stems, sterile flowers, and three small round leaflets, crowded together at the tip of the common petiole. It was first described by Willdenow in 1811. It has been found wild in several counties in Britain, and also in Scandinavia, Denmark and Germany, and, singular to say, it has lately been discovered in the mountains of Vermont. Good figures will be found

in Boswell-Syme's edition of *English Botany*, tab. 443, and in Lange's *Supplement to the Flora Danica*, tab. 133, and of the American plant in *Rhodora* for 1900, tab. 3. Mr. Culverwell's supposed hybrid Raspberry, figured in the *Gardeners' Chronicle*, Vol. XX. (1883), p. 13, Fig. 8, is *R. idæus* var. *rotundifolius* of Babington, intermediate between *obtusifolius* and the typical *idæus*. Focke says that the reason of its sterility is that its ovaries are incompletely closed.

3.—*R. strigosus* of Michaux (*R. pennsylvanicus*, Poiret) is the common wild red Raspberry, of the Eastern United States. It extends in a wild state from Labrador and Newfoundland across the Continent to British Columbia and Alaska, and southward amongst the mountains to New Mexico and North Carolina, reaching an altitude of 5,500 feet. It is closely allied to *R. idæus*, differing in having the stems and petioles densely covered with bristles, which are often tipped with glands, thinner leaves, densely prickly pedicels, and sepals furnished with a few glandular bristles on the back. It is much cultivated in the United States, and Professor Bailey says is now largely replacing *idæus*, on account of its superior productiveness and hardness. The fruit is a lighter red than in *idæus*, the principal garden forms being the Cuthbert and Hansell Raspberries. It is in the living collection at Kew. It is figured both by Bailey and in Britton and Brown's *Illustrated Flora of North America*.

4.—*R. occidentalis* of Linnæus is the Black Raspberry of the Eastern United States, called also Blackcap Raspberry, Scotchcap and Thimbleberry. It extends in a wild state from Canada and the Great Lakes southward to Georgia and Missouri, ascending to 3,000 feet in the mountains of Virginia, so that it is not so hardy as *R. strigosus*. Its stems are very glaucous, reaching a length of 10 to 12 feet, and finally arching and rooting at the tip, which is never the case with *idæus* and *strigosus*. The stems are rarely bristly; the leaflets are much larger than in the two preceding, white beneath, the flowers form a terminal panicle, the petals are white and the fruit black. It is frequently cultivated in the United States, the principal forms being the Gregg, Ohio, and Hilborn Raspberries. Like the last, it is figured by Bailey and Britton and Brown, and is in the living collection at Kew.

5.—*R. leucodermis* of Douglas, *R. glaucifolius* of Kellogg, is the Black Raspberry of the western side of North America. It extends from Redwood region of California to Oregon, Utah, and British Columbia. It is closely allied to *R. occidentalis*, but the leaves are more coarsely toothed and the prickles stronger and more hooked. It is figured in Regel's *Gartenflora*, tab. 670, and is in the living collection at Kew.

In all these Raspberries the colour of the fruit varies sometimes to pale yellow.

HYBRID RASPBERRIES.

6.—The most important hybrid Raspberry is the purple-caned American Raspberry, *R. neglectus* of Peck, a hybrid between *strigosus* and *occidentalis*. It occurs sometimes in a wild state where the two species grow together. Bailey mentions as its principal cultivated forms the Shaffner, Philadelphia, Gladstone, and probably the Caroline Raspberries. The fruit varies in the different varieties from red and pale yellow to black. It is figured both by Bailey (Shaffner and Caro-

line types), and by Britton and Brown in their *Illustrated Flora of North America*, and is in cultivation at Kew.

7.—*Rubus nobilis* of Regel is a cross between *idæus* and *odoratus*. It is unarmed, with three large broad leaflets, pale green beneath and a crowded panicle of bright red flowers. It is fully described in Regel's *Gartenflora*, in Vol V. (1857), page 86. This also is in the living collection at Kew. Hybrids of *idæus*, both with *strigosus* and *occidentalis*, are enumerated in Vilmorin's catalogue.

HYBRIDS BETWEEN RASPBERRIES AND BRAMBLES.

8.—The principal hybrid between a Raspberry and a Bramble is the *Loganberry*. The Loganberry was raised in 1881 at Santa Cruz, California, by Judge J. H. Logan, after whom it was named. Its parent was a pistillate form of the common Californian *R. vitifolius*, supposed to have been fertilised by pollen from neighbouring *R. idæus*. It was distributed in 1893, after five years' testing, by the California Experiment Station, through the United States and Europe. It is much more of a Bramble than a Raspberry in its habit of growth, foliage, and fruit. A basket of the fruit was exhibited in Vincent Square at the October show. Mr. Charles H. Shinn, in Bailey's *Cyclopædia of American Horticulture*, says that two adjacent plants grown at Berkeley, California, cover 12 square yards, and in 1899 yielded four gallons of fruit. The late Mr. Richard Dean stated in *The Garden* that with generous treatment its stems in the South of England will make a growth of 20 feet in a season.

9.—*The Mayberry* is one of Luther Burbank's recent "creations." It is a hybrid between *strigosus* and *palmatus*, a very distinct Japanese species, with large long-stalked solitary flowers and palmate leaves, like those of a Maple. It is described as having a large yellow edible fruit, ripening in advance of the Strawberry. We know nothing of it in England.

BRAMBLES—SPECIES.

10.—*Rubus laciniatus* of Willdenow (*R. Quintlandii*, Hort.), is well-known in English gardens. It was first described by Willdenow from the Berlin Botanic Garden in 1811. I believe it to be a cut-leaved form of *R. Selmeri* of Lindeberg, a common British Bramble, the *R. affinis* of Babington, but not of Weihe and Nees. The fruit is much larger and more succulent than that of the common Blackberry of the London greengrocers' shops, which is *R. ulmifolius* of Schott, *R. rusticus* of Mercier, *R. laciniatus* is much cultivated in Oregon, California, and the Sandwich Islands. It is figured by Lange in *Flora Danica*, table 2,303, and also by Bailey and in the *Journal of Horticulture* for 1883, p. 531, Fig. 105.

11.—*R. nigrobaccus*, Bailey, is the plant taken by Torrey and Gray as the typical form of *R. villosus* of Aiton, but it is not Aiton's plant. It is the common arching Bramble of the Eastern United States, extending from Canada southward to Florida, and westward to Arkansas. It has arching stems reaching a length of 10 feet, with stout, hooked leaves of the sterile stem with five ovate pointed leaflets, green beneath and the four upper distinctly stalked, lax simple racemes of 10-20 flowers, small ovate sepals and white petals, and moderately large globose succulent black fruit. There are two cultivated

types, according to Bailey, one the long-clustered Blackberries, such as Taylor and Ancient Briton (see Figs. 2,204, 2,205, 2,206 in his *American Cyclopædia of Horticulture*), and variety *sativus*, with fewer flowers (Fig. 2,207), from which spring the Snyder, Kittatinny and Erie Blackberries. There are several closely allied species, such as *R. argutus*, Link, *R. alleghaniensis*, Porter, *R. floridus*, Tratt., *R. Randi*, Bailey, and *R. Enslenii*, Tratt., which no doubt are included in Torrey and Gray's idea of *villosus*. The typical plant is also figured by Britton and Brown, Fig. 1,898, under the name of *villosus*.

12.—*R. nigrobaccus*, Bailey, is the plant including *R. ursinus* C. and S. and *R. macropetalus* Dougl., is the common Bramble of

amongst its garden forms the Aughinbaugh, Skagit Chief, Belle of Washington, and Washington Climbing Blackberry. It is in the living collection at Kew.

HYBRID BRAMBLES.

13.—The most common hybrid Bramble is *R. heterophyllus*, Willd. A cross between *nigrobaccus* and the true *villosus* of Aiton (*R. canadensis* of Torrey and Gray). It occurs both in wild and cultivated forms. Amongst the latter are the Rathbun, Wilson, and Wilson, junior, Blackberries, now well known to English cultivators.

14.—Another of Luther Burbank's "creation" is the Primus Blackberry, a hybrid between *R. vitifolius* and *R. crataegifolius*, Bunge (*R. Wrightii*, A. Gray), a native of

GUNTON PARK.

PLEASANTLY situated in a beautifully wooded park of 1,000 acres in extent, and some 16 miles from Norwich and $4\frac{1}{2}$ from Cromer, stands Gunton Park, the residence of Colonel Harbord.

The mansion is a square building of white bricks in the Italian style, and it was enlarged by Wyatt in 1785. In the year 1882, many of the principal rooms were ruined by fire, and, unfortunately, some have not been repaired since this disaster, many of the inner walls being now thickly covered with *Ampelopsis Veitchii*. From the south front, a magnificent view is obtained of what is known as the south lake, a sheet of water 25 acres in extent, while on the western side an even larger lake is to be seen, the two being connected with a stream.

A vista, known as the Coronation Avenue,

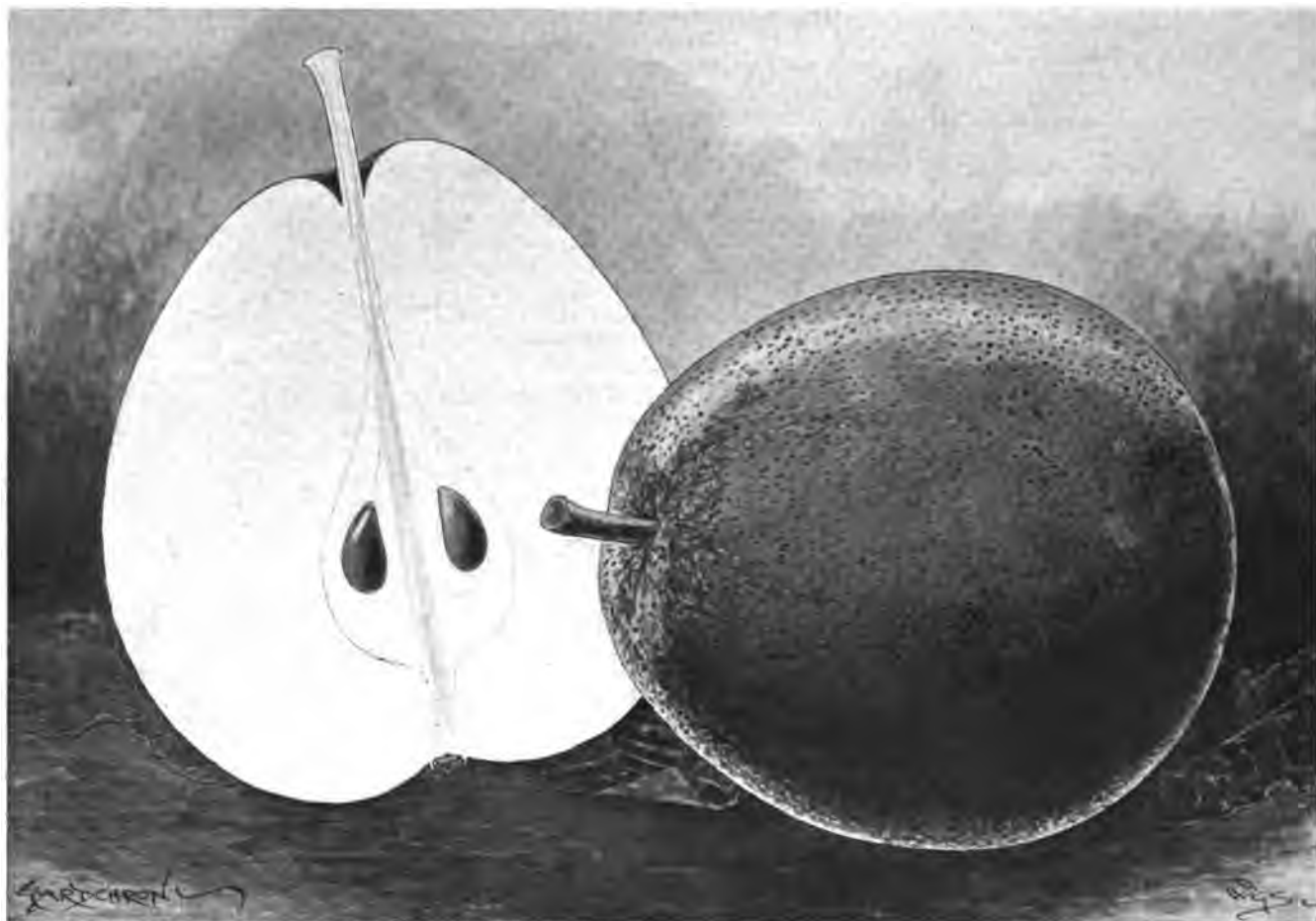


FIG. 19.—FRUITS OF THE PEAR "BLICKLING," WHICH GAINED AN AWARD OF MERIT AT THE R.H.S. MEETING ON JANUARY 8. "A LATE DOYENNE DU COMICE." (See description in last issue, page 31.)

the western side of North America. It is a very variable species, extending from California northward to British Columbia, and eastward to Idaho. It has long, arching or trailing stems, leaves of the fertile shoots green beneath, either simple and deeply, three-lobed (*vitifolius*), or with three distinct leaflets (*ursinus*). The flowers are often imperfect sexually, like a Hautberry Strawberry, few in number and corymbose, like a Dewberry, with long acuminate sepals, white petals, and a large black succulent fruit of many drupels. *R. macropetalus* is a northern mountain form, with large leaves and flowers. It is figured in Hooker's *Flora Boreali-Americana*, tab. 59. This species has been much cultivated in California and elsewhere of late years for the sake of its fruit. Professor Bailey mentions

North China, Manchuria and Japan. *R. crataegifolius* has leaves like a Hawthorn. It is in the living collection at Kew, and is figured in Regel's *Gartenflora*, tabs. 591 and 924. I have not seen this hybrid in England, but it is included in Vilmorin's catalogue.

15.—The Californian Mammoth Blackberry is a hybrid between *vitifolius* and a wild Texan species, probably one of the *nigrobaccus* group. It is said to be the largest Blackberry ever known, with fruit about 2 inches long, and stems 25 to 30 feet long, but that is in California, not England.

In writing this paper, as will be seen, I have been much indebted to Bailey's *Cyclopædia of American Horticulture*, an indispensable repertory of information about that which concerns gardening in the United States. J. G. Baker.

extends fully a mile in a southerly direction; the trees on either side are Oaks, many of very large size. In the same year that the fire occurred, a length of 800 yards was added to this avenue, so that in time it will be a magnificent feature.

The grounds are extensive, and contain many fine specimen trees. The Spanish Chestnut luxuriates, one of a group on the north-west side of the mansion being especially noteworthy. It is 60 feet in height, the diameter of the trunk at 3 feet from the ground being 7 feet. Some fine specimens of Beech and Oak are growing in the park; one of the latter was planted on a mound at the western end of the estate by John Harbord in the year 1760, and although in a healthy condition, it is of a peculiar tortuous growth. A tree known as the Thorpe Oak, situated about a mile from the mansion, is said to be 200 years old. The branchless trunk is 42 feet in height, and 18 feet in circumference.

Many charming grass glades, giving peeps of the landscape and trees beyond, have recently been made. An avenue of *Arundinaria japonica* (Metake), 18 feet wide, has, although but recently planted, attained a height of 12 feet.

A terraced flower garden on the south side of the mansion is bright in summer-time with flowering plants and Roses, and at the time of my visit the climbing and Tea varieties of the latter looked especially healthy and clean, with not a vestige of mildew. I also noticed a remarkably fine batch of *Montbretias* George Davison and Germania, the former proving a most useful variety for providing flowers for cutting in quantity.

The glass department is not extensive. The vineries are old structures, but they give remarkable results. Gros Maroc in-arched on Gros Colmar produces annually heavy crops of shapely bunches with large berries of quite good flavour for this variety. Exceptionally fine was the crop of Muscat of Alexandria Grapes, the rods being in-arched on Foster's Seedling. Mr. Allan, the gardener, is of opinion that when

velt, &c., were the picture of health. Chrysanthemum plants carrying from three to six buds gave promise of a fine display later on.

Much attention is paid to the culture of hardy fruit. The soil is suitable—a sandy loam—and there are several good walls with various aspects. Pears are a feature at Gunton. A long, southern wall is furnished with handsome trees that at the time of my visit were laden with excellent fruits of such varieties as Louise Bonne de Jersey, Doyenné du Comice, Emily d'Heyst, Duchesse d'Angoulême, Easter Beurré, President Barabé, Marie Louise, Marie Louise d'Uccle, Striped Williams, Passe Colmar, and Winter Nelis. On a wall with a west aspect trees of Marguerite Marillat and Fondante d'Automne were finely cropped. Espalier trees were almost equally well cropped, such varieties as Pitmaston Duchess, Striped Williams, and Brockworth Park being especially noticeable.

Wall-trained Peaches, in the appearance of their foliage and fruits, did not suggest any difficulty, climatic or otherwise, in obtaining

FOREIGN CORRESPONDENCE.

THE PROVINCE OF MANICA AND SOFALA IN PORTUGUESE EAST AFRICA.

THE Portuguese territory in Africa under the above name is steadily developing, and the settlers are endeavouring to show the residents what can be done within its boundaries. Within the last three years experimental stations have been opened in different parts of the colony, and in them have been planted many introduced economic plants, with a view to their general culture for profit. The Government of the territory "Companhia de Moçambique" wish to show the inhabitants what can be done in this rich corner of East Africa. On the coast and lowlands are two experimental stations, the Mambone, Govaro district, and the Chirenda, Chilokane district, respectively. The success of the various introductions at these stations is established. Land is available for the growing of Coconut Palms, cotton and fibre-producing plants. Labour is cheap and abundant, and transport is easy. In the interior are two more stations, and others are about to be opened. In touch with the railway, 61 miles from Beira, one of the Rhodesia cotton companies is developing some 16,000 acres of land for the growing of cotton plants. The land can be tilled by a steam plough. Valleys of rich soil are at the disposal of the practical agriculturist. I have just visited the western side of the territory, where I saw as fine a crop of *Coffea arabica* on four-year-old trees as I ever saw in India or Ceylon. The plants, moreover, were free from the leaf-disease common to this species of coffee. The Cedra rubber tree, *Manihot Glaziouii*, grew freely everywhere.

We have the first plantations in South Africa of *Boehmeria nivea*, the Rheea, Ramie, or China Grass. The fibre is now offered in the London market. The stalks grow to a height of from 4 to 5 feet. The area devoted to its culture will be greatly extended.

Ficus elastica, the Assam rubber tree, does well on this east coast and roots readily from cuttings even when they are simply put in the holes in the field, their only requirements as cuttings being shade and plenty of water.

Fig. 20 shows one of our indigenous climbers, *Telfairia pedata*, with only two years' growth. It is growing over *Ficus cordata*, a common native tree. The fruit of *Telfairia pedata* is as large as a football, and greatly resembles an ordinary green gourd. It contains numerous seeds which are very rich in oil, having as much as 30 per cent., of a tallowy substance. The seed is an article of commerce, being exported to the South of Europe. The Kaffirs have an antipathy to cultivating this plant. It is generally found on trees in abandoned gardens. The plants in the foreground are *Agave rigida* var. *sisalina*, and their culture also represents a new industry in these parts. They are in their third year of planting. We are now making our first cutting of leaves, and the fibre—sisal hemp—from them is of excellent quality. It will represent the first of this fibre exported from South Africa. A large demand exists here for the plants. *Furcraea gigantea*; the green Aloe, is also grown as a fibre-yielding plant.

Mango trees (*Mangifera indica*) were first planted here by one of the early Indian traders who came to this coast and opened a garden at a favoured spot, wherein was good soil and plenty of water.

Gossypium barbadense (South Sea Island cotton) is also cultivated. In 1905 we gathered cotton from plants 110 days old, and this cotton realised in the Liverpool market the high price of 9d. per lb.

Other plants cultivated are Coconut Palms,



FIG. 20.—TELFAIRIA PEDATA GROWING OVER FICUS CORDATA IN PORTUGUESE EAST AFRICA. THE PLANTS IN THE FOREGROUND ARE AGAVE RIGIDA VAR. SISALINA CULTIVATED FOR ITS FIBRE.

the variety is worked upon Foster's Seedling as a stock, there is no risk of shanked berries. In the bunches seen there was no sign of such disfigurement, and the colour was distinctly good, being of that deep pleasing amber tint seen only in the very finest bunches. A capital illustration of how to best utilise the back walls of a vinery was seen: Black Hamburg and Alicante Grapes were planted against them, and really serviceable bunches of well-coloured grapes were produced.

A new Carnation house has been lately built, and this is planted on the American principle. In shape, it is a double span-roof structure 12 ft. in height, 40 feet in length, and 30 feet in width, with beds 4 feet in width down the centre, with paths between them. One bed, 12 feet 6 inches in width, runs round the building next to the sides. The beds are 8 inches deep. The arrangement of the hot-water pipes appeared to be perfect, and they were so placed that air from the front lights must pass over the pipes as it enters the house. The plants of such varieties as Enchantress, Challenger, Fur Maid, Reginald Godfrey, President Roose-

satisfactory results. Hale's Early, Waterloo, Early Alexander, Violette Hative, Condor, Royal George and Alexander Noblesse, the latter, with Desse Tardive, were especially fine on an east wall. The last-named variety is not as much known as its merits deserve. It crops freely, grows to a good size, the fruits are richly coloured, and, above all, their flavour is good.

Apples succeed well in these gardens. The premier place must be given to Norfolk Beauty, which had huge crops of very fine fruit, both on the original tree and on quite small two-year-old bushes. Those who do not grow this kitchen Apple would do well to add it to their collection; it is a cross between Waltham Abbey and Warner's King, having the combined qualities of the two; one tree, four years grafted, had at the time of my visit 36 handsome fruits. Other varieties in bush and standard form were Tyler's Kernel, Seaton House Russet, Lady Henniker, Stirling Castle, Bismarck, Ribston Pippin, Allington Pippin, Royal Jubilee, Cox's Orange Pippin, Egremont Russet, James Grieve, Chelmsford Wonder, Golden Noble, and Hornmead's Pearmain. E. Molynceux.

the seeds of which were procured from Zanzibar, India, and Ceylon, and the Sweet Cassava, or Manihot (*Manihot aipi*), new to this territory. The roots of this plant form one of the chief food products of Brazil, West Indies, South America, &c. The starch that they contain is turned into tapioca.

At every experimental station we have stock—cattle, pigs, mules, donkeys, goats, and poultry. *J. R. Alexander, Department of Agriculture, Companhia de Moçambique, Beira, S.E. Africa.*

ORCHID NOTES AND GLEANINGS.

ODONTIODA BRADSHAWIÆ ×.

This beautiful Orchid (fig. 21) was the feature of last week's meeting of the Royal Horticultural Society, and was distinguished by a First-Class Certificate, bestowed by the Orchid Committee.



FIG. 21.—ODONTIODA BRADSHAWIÆ ×: COLOUR OF FLOWERS CINNABAR-SCARLET, WITH A YELLOW CREST TO THE LIP.

It represents the crossing of two distinct genera—*Cochlidia Nœzliana* and *Odontoglossum crispum*, but it is not the first hybrid evolved from these genera, for *Odontioda Vuylstekeæ* ×, which caused such a sensation at the Temple Flower Show of 1904, claims a similar parentage, save that the *Odontoglossum* species was *Pescatorei*, instead of, as in this case, *crispum*. The predominating colour in the segments is a shade of cinnabar-scarlet, with a yellow crest to the lip that is blotched in front with scarlet. The raisers were Messrs. Charlesworth & Co., Bradford.

LES CATTLEYA TRAITE DE CULTURE PRATIQUE.*

UNDER this title Monsieur Leon Duval issues his new Orchid work designed mainly to deal with the cultural details of the members of the genus *Cattleya*, although the botanical standing of the species forming the genus has been well

and carefully attended to, in some cases according to the descriptions given by Professor Alfred Cogniaux in the *Dictionnaire Iconographique des Orchidées*, most of the 34 illustrations being reproductions of the drawings made by M. Goossens for that work. After the preamble dealing with the genus *Cattleya*, the species are enumerated in alphabetical order, the name being followed by an enumeration of the synonyms and the references, the periods of growth, resting and flowering, and the history and the description of the species. Then follow instructions relating to the management of imported specimens of the species; "culture rationnelle," in which the question of growing in pots or baskets, suspended, or on the stage, the temperature, shading, &c., are set forth; and occasionally a recommendation that the plant may be grown in sphagnum-moss and Polypodium fibre. Then follow paragraphs dealing with the peculiarities of the species;

excessively elaborated (which, as the work is cultural, is not a bad fault), some of those most easy to grow having much space devoted to them; for examples, *Cattleya Gaskelliana* takes up five, and *C. labiata autumnalis* nine pages.

The concluding portion of the book—pp. 204 to 222—is taken up with numerous articles relating to the *Cattleya* house, its proportions, construction, heating, ventilation, shading, and every other point likely to be of use to the Orchidist.

The employment of much time, great care on the part of the author and a wonderful knowledge of the subject are evident throughout the whole of this useful work.

THE ROSARY.

ROSES IN POTS.

THERE are several methods by which Roses may be grown and successfully flowered in pots, and most of these are generally well known. The following is a description of a lesser-known system which I have practised with the best results.

The present is a suitable time to commence operations, and all sections of Roses may be successfully treated under the system detailed below.

Carefully lift the seedling briar, Manetti or de la Grifferaie stocks, as the case may be, that were budded during the months of July, August, and early September, but first subject them to a careful examination to ascertain if the buds are alive and plump. Carefully cut back the longer roots, and trim those which have been damaged in lifting, before potting them in a compost composed of two parts good loam, one part leaf-mould, and one part cow manure—the last-named material to be well rotted and capable of being rubbed through a half-inch mesh sieve. Add a little sharp sand. The whole of these materials must be well mixed together, and in the case of soil intended for strong-growing varieties and climbers, the addition of a 5-inch potful of bone-meal to each barrow load of the potting medium will be very useful. Previous to potting the plants, the stock above the dormant bud should be cut off to within an inch of the inserted bud the remaining portion left above the bud can be removed after the latter has commenced to grow. The stock should never be cut quite close to the bud, for it often happens that several inches of the main shoot will die back after pruning, and the bud perishes with it. The vigour of the variety should be considered when potting; and, owing to the free root action they have had in the open ground, the roots will require compressing a little in order to get them into their pots, which should never be smaller than 5 inches in diameter, whilst for the stronger-growing varieties pots 8 to 10 inches in diameter must be used.

Firm potting is particularly necessary, and the soil should therefore be rammed freely. One important item is to have the bud in a line with the soil level, but it must on no account be buried below the surface. After potting, the plants can be placed in a cold frame, or stood in the open air and covered with straw, as this will protect the pots and buds from hard weather, and induce root action. In the case of the more tender Tea varieties, a frame should certainly be used for their protection, as much to guard against excessive damp as from severe weather. The subsequent treatment of the plants from this time will depend upon the available space the cultivator has at his command. If flowers are required a month or six weeks earlier than those in the open, the plants, after having been potted for about one month, should be placed in slight heat, which should be gradually increased as growth proceeds. A little ventilation should be afforded on all

* Les Cattleya Traité de culture pratique. Leon Duval. Paris. Ocave Doin, Editeur, 8, Place de l'Odéon. 1907.

favourable occasions, and a slight syringing of tepid water be given overhead when closing the house; as the season advances, and the sun's rays increase in power, two syringings each day will be necessary. Precautions must be taken to guard against mildew, which must be immediately checked by an application of flowers of sulphur, or sulphide of potassium, the latter used at the rate of half an ounce in one gallon of water, and sprayed on the plants towards evening time. As growth proceeds, and the pots become full of roots, the plants should receive a little manurial stimulant. After the plants have flowered, say about the end of April or May, turn them out into a cool frame, to gradually barden off, previous to their being placed in the open air. These old plants are excellent subjects for forcing the following autumn or spring, but a sunny position must be given them that their growths may be perfectly ripened during the summer months.

It will at once be seen that by this system of Rose-growing considerable time is saved, for if the plants were potted up in the autumn, as is generally practised, they require a season's growth before they are properly established, and much time must therefore elapse before they can be successfully forced.

Many of the new rambling Roses respond well to this method of culture, and often produce growths 7 to 8 feet in length the first season after they are potted, and the following spring they flower profusely along almost the whole length of their growth. With me, the variety *Maréchal Niel* (worked upon the *Griffariae* stock) has flowered well in five months from the time of potting the stock containing the dormant bud.

In cold, wet districts, many of the weak and tender kinds of Roses may be lifted and treated in this manner, and after some growth has been made and when the spring frosts are over, be planted out in the open ground. To the grower with limited area and means, this practice is helpful in allowing many of the tender and more beautiful sorts to be successfully cultivated. *W. H. Clarke, Aston Rowant, Oxon.*

FLORISTS' FLOWERS.

PECULIARITIES IN CHRYSANTHEMUM SPORTS.

WITH reference to a parti-coloured or bi-color *Chrysanthemum*, see p. 435, I may state that this is quite a common occurrence when sporting takes place in these plants. Often it is caused by the flower reverting to its original form, and it is of quite common occurrence in the sports from *Empress of India*, *Golden Empress*, and *Queen of England*. *Waban*, a variety of American origin, introduced into this country some 12 or 15 years ago, was a wide flower, with handsome forets that recurved gracefully at their tips, but it was found to be too "thin" for exhibition purposes, and it did not long enjoy popular favour. The colour, however, was distinctly pleasing, being a rich rose tint, with a plum-coloured suffusion.

These parti-coloured sports are of no garden value, but they show how little control we have over a plant's sporting proclivities. In spite of all scientific knowledge, we are still far away from the power of controlling this phenomenon; in fact, we do not even know the cause of sporting. Among the *Incurved* flowers more sports have occurred than in the Japanese type, in spite of an excess of varieties in the latter section. Why this should be is difficult to say, and also why so few sports of value are obtained in the present day, as compared with those of 15 years past. Seldom do we find one section sporting to an opposite type, although there are a few of such instances on record. The *Incurved George Glenny* produced a most beautiful *Reflexed* flower, which Mr. H. Cannell introduced into commerce, and which

was immensely popular for many years and may be now in many places for aught I know. I quite forget its name, but in growth it was stronger than its parent, and it produced flowers freely, and of that delightful primrose colour which rendered its parent so popular.

Another instance of cross-sporting is *Mrs. J. Bradney*, an *Incurved* variety obtained from the *Reflexed Mrs. Forsythe*. This, too, retained its parental colour, and in the neighbourhood of Bristol it was very popular, being especially well cultivated by Mr. J. Bradner, who was a skilful specimen plant producer.

SINGLE-FLOWERED CHRYSANTHEMUMS.

ONLY a few years since it was quite exceptional to find a class at any of the autumn shows for single-flowered *Chrysanthemums*, but now it would be difficult to name a *Chrysanthemum* schedule which does not contain one or more classes. Varieties can be raised so freely from seed that an annual revision of lists seems an absolute necessity to maintain an up-to-date collection. The following 24 sorts will supply a thoroughly representative selection:—

Miss Mary Anderson, blush white.
Miss Annie Holden, a yellow sport from *Miss M. Anderson*.
Edith Pagram, rich pink.
Framfield Beauty, rich crimson.
Earlswood Beauty, primrose shade of yellow.
Purity, white.
Bronze Pagram, bronze.
Mr. R. M. Parkinson, bright yellow.
Earlswood Glory, pure white.
Ewan Cameron, blush white.
Clibrans' Yellow.
Mrs. E. Roberts, blush-tinted.
Mary Richardson, reddish-salmon.
Sir George Bullough, deep yellow.
Eureka, white.
G. W. Forbes, crimson-amaranth.
Victoria, primrose.
Will Jordan, crimson-lake.
Felix, crimson, bronze.
Clibrans' 20th Century, golden shade of bronze.
Elsie Neville, terra-cotta shade of red.
Crown Jewel, bronze-yellow.
King of Siam, deep crimson.
Mrs. Langtry, pink. *E. M.*

VEGETABLES.

CELERIAC AS A WINTER VEGETABLE.

IN this country the Turnip-rooted *Celery* or *Celeriac* is not largely grown, yet it forms an excellent winter vegetable, is of agreeable flavour, and, being easily digested, is especially suitable for invalids. On the Continent it is much prized, both as a salad and as a cooked vegetable. Considerable quantities of the roots are imported into this country, but *Celeriac* can be grown equally well at home as abroad. It does not require to be planted in trenches, but simply in deeply-dug land, and it must be given liberal quantities of food in the shape of fertilisers or liquid manures. Of late years *Celery* has been much used as a boiled vegetable, but *Celeriac* is better for the purpose, and this latter plant is the hardier, and can be had in use for six months—from October till the end of March. In the southern parts of this country it can remain in the ground all the winter, providing a little soil be drawn around the crowns; but where the land is heavy, or in cold districts, it should be lifted in the early autumn and be stored in a cool store, from which frost can be excluded, a little soil or fine ashes being placed over the roots to prevent them from shrivelling. The cultural requirements of the plant are simple and very similar to those of *Early Celery*. The seed should be sown in February or March in a frame or warm house, and when the seedlings are large enough they should

be transplanted a few inches apart, either in frames or in boxes. When sufficiently hardy, they should be planted in their permanent quarters in deep drills drawn 2 feet apart in land that has been well manured. Allow a space of 1 foot between the plants in the rows. At the time of planting, remove all lateral shoots, and when planting is finished give a copious watering. At no time during its growth should *Celeriac* be allowed to become dry at its roots, and as growth increases afford a liberal supply of soot, and occasionally a little salt. *Celeriac* is usually ready for planting in its permanent quarters in May and June—the earlier the better—in order that the plant may have a long season for growth. All lateral shoots must be removed, and only the main growth encouraged. There are some fine Continental varieties. The Apple-shaped and the Dwarf Erfurt are both excellent kinds. A word as to the cooking. Many persons cook it similarly to Beetroot, and when cold slice and place it in vinegar, but I would advise a trial thus: slice good-sized roots and fry the rings in butter or in rich stock till they are quite brown, and then serve very hot on toast. *Celeriac* also forms an excellent dish when made into a purée, and placed around cutlets of any kind. An ordinary form of cooking is to boil it till soft in water, with plenty of salt, and then to serve it with gravy. It may also be boiled like *Celery*, and served with white sauce. *G. Wythes.*

FRUIT REGISTER.

LATE PEARS.

GOOD varieties of late Pears, such as are in season in March, are not numerous. In October there is an abundance of excellent varieties, which all ripen about the same time. In these gardens the best kinds ripening in October are *Doyenné du Comice*, *Marie Louise*, *Pitmaston Duchess*, *Beurré Bosc*, *Beurré Superfin*, and *Durondeau*. Following later are *Winter Nelis*, a very nice Pear, but small; *Conference*, *Glou Morceau*, *Nouvelle Fulvie*, *Passe-Crassane* (up to the present this last-named kind has with me not been very satisfactory); *Josephine de Malines*, *Olivier de Serres*, and *Zephirin Gregoire*. One of the best of the above named, and one which I intend to plant largely, is *Nouvelle Fulvie*. Fruits of this variety grown on upright cordons assume a bright red colour on the side next the sun and grow to a large size. The flesh and flavour are both excellent in quality. *Josephine de Malines* is also an excellent variety, but in these gardens the fruits this year ripened very early. In some seasons I have kept them in good condition till February. *Glou Morceau* is very good about Christmas time. I am planting this season *Le Lectier*, *Mme. Lye Baltet*, *Marie Benoist*, and *President Barabé*, all late varieties, and these will be given good positions, and be planted in a good sweet loam, to which has been added some burnt earth, a little sweet, well-decayed manure, and a sprinkling of bones and old mortar. Very careful attention in the matters of thinning, feeding, and watering are necessary in the culture of late varieties of Pears, and the fruits should not be gathered till very late in the season. *Beurré Rance* is a variety that keeps well. The fruits are of a desirable size, but the flesh is watery, and I have, in consequence, discontinued growing it. With some growers, I believe it develops very fair flavour and quality generally. It would be interesting if growers would record their experience with respect to the best varieties of Pears for keeping up a good supply during the three first months in the year. It has often occurred to me that stewing Pears might be more largely grown, seeing that the demand for them is on the increase. *Verulam* and *Catillac* (which keeps well) are two good varieties of stewing Pears. *H. Markham, Wrotham Park, Barnet.*

COLONIAL CORRESPONDENCE.

ROSE CLAIRE JACQUIER.

I AM posting you by this mail two photographs of a good Rambling Rose, Claire Jacquier, growing on the house side in this garden. I have measured the plant to-day, and it is 22 feet 10 inches in height and 35 feet in breadth. This was planted nine years ago, and although our soil is all sand it has reached the top of the two-storey house and is now producing more young growths—10 and 12 feet shoots. I think I shall not have much trouble to get it 50 feet in width next season. The only fault this variety has is its short-flowering habit, but it forms a grand wind-break and shade for the stoop plants, of which *Begonia corallina* over the front door is doing well, covering the wall 11 feet high and as far in width; also President Carnot, with its grand trusses of flower. I shall plant Dorothy Perkins and Lady Gay Roses this season. I have seen Dorothy Perkins make shoots 20 feet in length out here in a season. *F. C. Syer, gardener to D. K. Petersen, Esq., Glenmore, Kenilworth, nr. Cape Town, S.A., December 5, 1906.*

[Unfortunately the photographs are unsuitable for reproduction.—Ed.]

MARKET GARDENING.

QUICK PROPAGATION OF CARNATIONS.

CALLING, on January 4, upon Mr. J. J. Camferman, Swan Lane Nurseries, Whetstone, N., I saw 4,000 plants of the variety Enchantress being potted into "thumbs." They were well rooted and strong little plants from cuttings put in on December 15, 1906, 21 days previously, including the day of insertion. Apart from this rapid propagation, special note was made of their absolute freedom from "rust" or disease. Other varieties equally clean and good were Mrs. T. W. Lawson, Floriana and White Perfection. The span-roofed house, running from north to south, and measuring 70 feet by 11 feet, is heated with one row of 4-inch pipe all round, and plenty of additional piping under the bed. The cuttings were rooted in very moderate heat and were not covered with frames. *Stephen Castle.*

The Week's Work.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Carrots and Turnips.—The forcing of these crops should now be commenced. A good supply of stable litter and leaves will be necessary for the purpose of forming hot-beds, mixing these materials well together, in the proportion of five or six parts of leaves to one of litter, which will ensure a more lasting heat than if more litter were used. Sandy loam, with a liberal addition of road scrapings or screenings from the potting shed, is the most suitable soil for the small-rooting early Carrots, such as Inimitable Forcing, Early French Horn, &c., and for such Turnips as Early Snowball, which is a very good variety for forcing, and for sowing on an early border out of doors a little later on.

Mint and Tarragon.—Lift some roots of these and pack them closely together in boxes filled with light soil, which should be stood in a moist atmosphere at a temperature of about 55° until considerable growth has been made, when they should be removed to cooler quarters.

Asparagus beds.—If the Asparagus beds have not already been given a good mulching of well-rotted manure, this should be proceeded with at once, taking advantage of frosty mornings to wheel it on to the ground. The heavy rains which previous experience leads one to expect in February will then wash the constituents of the manure well down to the roots.

Cauliflowers.—If the autumn-sown Cauliflowers are being wintered under hand-lights or in frames, air should be admitted freely whenever the weather is open, in order that the plants may make hardy and sturdy growth, and so be in the best condition for shifting to their positions out of doors at about the end of the month of March.

Jerusalem Artichokes.—The greater part of this crop is generally left in the ground, sufficient being lifted at one time to last for two or three weeks, thus ensuring a supply in the event of the ground becoming frost-bound. The remaining tubers, however, could now be lifted and sorted into two sizes, the smaller ones being used for "seed" purposes. If it is intended to plant them again on the same ground as before, apply a good dressing of dung, digging this deeply into the soil. The sets may be planted immediately, in rows placed at 3 feet apart, and allowing a space of 15 inches between each set in the rows.

Pea sticks.—If these can now be obtained, advantage may be taken of wet weather to prepare the sticks for use, which will save valuable time later on, for as the days get brighter and longer, there will be much important work requiring immediate attention.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Calanthes.—Deciduous *Calanthes* of the *C. vestita* and *C. Veitchii* sections as they pass out of flower should be placed for their short season of rest in a cooler house where the atmospheric temperature will not fall below 60°. Raise them well up to the roof-glass, choosing a position where all the sunlight may reach them. Their immediate surroundings should be kept quite dry, and water at the roots wholly discontinued. Plants of the late flowering varieties as *C. Regnierii*, *C. R. Sanderiana*, *C. R. Stevensii*, *C. R. Williamsii*, *C. Bryan*, *C. Wm. Murray*, and the varieties of *C. Turnerii* which have a few flowers open will require occasional light waterings at the roots until the spikes have become fully developed, when water must be entirely withheld. After the spikes have been cut, place the plants in their resting quarters with those already mentioned. The same remarks are applicable to those plants of *C. vestita rubro-oculata gigantea* which are now developing their flower spikes.

Cypripediums.—During the past five or six weeks a considerable number of *Cypripediums* have been in bloom in the cool intermediate house, and amongst them may be enumerated the following varieties, all of which are well worth adding to any collection. *C. insigne*, *C. i. Sanderæ*, *C. i. Sanderianum*, *C. i. Harefield Hall*, *C. i. Dorothy*, *C. i. Amy Moore*, &c.; also *C. Leeannum*, *C. L. giganteum*, *C. L. Clinkaberryanum*, *C. L. maculatum*, *C. Hera*, *C. H. Euryades*, *C. Adrastus*, *C. Actæus Langleyense*, *C. Alcibiades*, *C. hirsuto-Sallieri*, *C. Sallieri-Hyeannum*, *C. Fairrianum*, *C. aureum*, and many others. After the flowers have been cut carefully wash the leaves and free them from all scale, insects, and other pests. Restrict the supply of water during the next few weeks, after which time, if any of the plants require repotting, if large unwieldy specimens need breaking up, or if it is desirable to increase the stock of any particular or rare varieties by dividing the plants into separate pieces, the operations should be commenced. Plants which have become pot-bound should be afforded a liberal shift into pots at least two sizes larger than those they are now growing in. The divided pieces should be placed in comparatively small pots until they become well rooted, when they may again be repotted into pots one size larger. Use clean pots, and drain them to about one-third of their depth with broken crocks. Place a thin layer of rough sphagnum-moss over these, and for a compost use lumps of fibrous loam, coarse peat, and chopped sphagnum-moss in equal parts, adding some broken crocks and silver sand, and well mixing the whole together. Pot moderately firmly. Keep the base of the plant and the compost just below the rim of the pot, so as to make the process of watering easy. For the first few weeks after the plants have been repotted afford them only very moderate quantities of water each time the compost becomes dry, but when well rooted into the new soil, abundance of water will be necessary, both at the roots and in the atmosphere. Keep the repotted plants thinly shaded from all strong,

direct sunshine. Lightly spray the plants overhead on warm, sunny days. To make a well-balanced specimen it is a good plan to select strong, well-rooted plants, and, with a sharp knife, to divide the rhizomes of the old growths in several places, leaving the two front growths intact. In course of time these old growths will produce new ones, which generally come up in the centre of the plant, thereby filling any bare spaces which may have been caused through loss of foliage.

PUBLIC PARKS AND GARDENS.

By W. W. PATTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Garden Allotments.—The Allotments Act of 1887 was passed with a view to making it easier for the labouring classes—both in town and country—to obtain allotment-gardens of a fair size at reasonable rents. The Act gives urban and rural authorities the power to purchase or lease suitable land inside or outside their districts for the purposes of allotments, always provided they are quite satisfied that it is not possible for the labouring classes to obtain such allotments from private owners at a reasonable rent. A number of towns and rural districts in England and Wales—Scotland and Ireland are excluded—have, I believe, adopted the Act, and others, while not adopting it, have set aside land already in their possession and let it as allotments under exactly the same conditions as if it had been acquired under the Act. The provision of garden-allotments, whether under the Allotments Act or not, is in many ways a very great boon to working men and their families.

Their management.—The management and control of town garden-allotments naturally devolves upon the Parks Department in all towns where such a department exists, hence it is necessary for superintendents to make themselves well acquainted with the working of the Allotments Act. In the first place, before any land is let it is essential to have a number of rules drawn up for the regulation and guidance of the tenants. Before these rules can come into force they must have the sanction of the Local Government Board just in the same way as ordinary park bye-laws. These regulations may be incorporated in an agreement which ought to be entered into and signed by every tenant, but they may also be on a printed form available for distribution among possible tenants. Authorities are permitted to let allotments from any area up to an acre; but, excepting under special circumstances, no person is allowed to rent an allotment exceeding an acre. For obvious reasons the maximum is never reached in town allotments. In this city tenants at one time were allowed to hold 40 perches, then later they were reduced to 20, and now the demand is so great, and the area of land at our disposal so limited, that it has recently been decided to reduce the size of all allotments to 10 perches each.

The abuse of sub-letting.—As local authorities are, very properly, not allowed to purchase or lease land for allotments unless at such a reasonable price that the rents received from the letting will cover all expenses incurred (excepting draining, fencing, and road-making), it stands to reason that in thickly-populated districts, where the value of land is very high, little suitable ground can be obtained. Under these circumstances, in large towns there are always more applicants for allotments than there are plots to dispose of. This fact often gives an opportunity to the unprincipled to abuse their privileges by sub-letting their allotments at enhanced rentals. Sub-letting is quite illegal, but, nevertheless, it appears to be done wherever allotments are sufficiently large to be so dealt with, and the only remedy seems to be to let them in such small plots that no advantage can be gained by a holder dividing his land with another. Greengrocers are sometimes a source of trouble to those in charge of allotments, for although not eligible under the Act, they often contrive, by some means or another, to get possession of a number of plots and hold them in the names of different persons. A piece of garden ground near a town at the low rent usually charged for municipal allotments is a great advantage to people in this business, and it is not to be wondered at that they do their best to secure it in this way.

Compensation to outgoing tenants.—Some authorities, for convenience sake, and to do

away with the bother of dealing with compensation, allow outgoing tenants to find incoming tenants, who are willing, in taking over their plots, to pay the compensation they ask. This is how undesirable persons get hold of the ground. It is a very bad policy to adopt, for although it may save a little inconvenience at the time, it ultimately leads to a great deal of trouble with would-be tenants. I have known respectable working men apply for years to an authority for allotments without success, while others who had not even made formal application obtained them quite easily by taking them direct from outgoing tenants. This is not as it ought to be. The names, with particulars relating to all applicants for allotments, should be entered in a special book kept for the purpose, and all applications should be dealt with in rotation, as vacancies occur in the allotment grounds. The crops and outbuildings should be valued by a competent person, and the incoming tenant made to pay on his valuation in the ordinary way. This is not only the fairest method of dealing with the letting question, but it is the most businesslike, and the one which in the end works best.

Encourage good cultivation.—Although it does not exactly come within the province of the parks department to encourage a high state of cultivation on their allotments, yet—where there is no local society to do this kind of thing—the department would be doing a great service if even unofficially it did something to promote healthy rivalry among its own tenants.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

The propagating house.—This should be thoroughly overhauled and cleaned, in order to have everything in readiness, for quite the busiest time of the year in this department is now approaching. If not already done, the present is a good time for putting in cuttings of *Codæums* (Crotons) and *Cordylines* (*Dracænas*), thus ensuring for them a long season of growth. "Ringing" is probably a better method of propagating these plants, especially if it is desirable to obtain large plants in a short space of time. [*Codæums* raised from "ringing" have usually a better furnished base, with longer, more perfectly developed leaves, than those raised from cuttings.—ED.] If this latter method is adopted, the material used for covering the cut part of stem should be kept in a damp condition to induce the plant to make roots, and when this has taken place, the rooted shoots should be cut off and potted carefully in light, warmed soil. Place these plants in a position where they can be shaded for a few days whilst recovering from the check. Afterwards remove them to a shelf in the lightest part of the house, and re-pot them when more rooting space becomes necessary. *Dracænas* may also be propagated by cutting up the old stems in the same way that vine-eyes are usually treated, placing the pieces thickly together in pans. This is a good method where large quantities are required, and they will make nice plants in the first season. *Acalyphas* make roots from cuttings very easily, and are useful plants, the variety *A. marginata* being especially useful in a small state. Cuttings of *Panicum*, *Fitonias*, *Zebrina pendula* (*Tradescantia*) and *Pilea* should also be put in, as it will soon be necessary to throw the old stock away, being unsightly. Small batches of cuttings should be inserted at intervals throughout the season, young stock being most decorative.

Cinerarias.—Early plants will now be showing flower, but they may be afforded a little weak manure-water, and kept in an atmospheric temperature of 45° to 50°, varying according to the weather, and falling to 40° on cold nights. A hot, dry atmosphere would be very harmful. Fumigate the plants carefully at regular intervals. Later batches in frames may be kept a trifle cooler, admitting air whenever the outside weather permits.

Herbaceous Calceolarias succeed under similar treatment to *Cinerarias*; the plants in either case must not be permitted to suffer from want of water at the roots. Move them into larger pots in February, or later, according to the state of the plants, never allowing them to become pot-bound, as they are rarely capable of growing freely after suffering such a check.

General work.—Overhaul plant houses generally. Wash them inside and out, give a coat of white-washing to the walls, and effect all necessary repairs, that there may be nothing of this work to be done in the spring. Prepare liberal supplies of leaf-soil, peat, and loam in the sheds, having it all picked over ready for use. See that a supply of charcoal, lime rubble, sand, &c., is maintained.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Peaches and Nectarines.—Early houses, where the trees are coming into bloom, should be heated very cautiously, and when the weather is cold let the atmosphere be kept somewhat drier than usual. When the flowers are fully open, pollinate them once daily when the sun is warmest with a camel's-hair brush or hare's tail mounted on a stick. This treatment is specially desirable in cases of shy-setting varieties. Maintain an atmospheric temperature of 50° to 55° at night, and 60° to 65° by day, until the fruit is set. Admit air through the top ventilators only, taking care to prevent cold draughts.

Orchard house trees plunged out of doors should have a net thrown over them to prevent the buds being damaged by birds.

Early Figs.—When ripe Figs are required early in the season, it is best to cultivate trees in pots. Plunge the pots in a bed having a bottom heat of 70° to 75°. The atmospheric temperature of the pit should be kept at 50° or 55°. Keep the atmosphere of the house moist by sprinkling the paths with water daily. Water the plants carefully. Any plants that require a shift into larger pots should have their roots pruned, as Figs must be kept well in check. The compost used for potting should consist of light, calcareous loam, or, if this cannot be obtained, heavier loam should be mixed with lime rubble. Top-dress all the plants with horse-droppings. Prune the trees, and tie any shoots that may require support.

Figs in borders.—If the shoots of these were properly pinched in summer, the trees will require little or no pruning now. Any shoots that are not required may be thinned out to prevent crowding. Wash the stems and branches with soft soap and hot water, especially if red spider or other pest has been troublesome. Wash the woodwork and glass of the houses, and tie all the trees up neatly to the trellis. Next remove the loose surface soil from the borders and top-dress them with fresh loam and lime rubble. Give the border a good soaking with water, and mulch the surface. Keep the house quite cool at present. When new permanent Fig-houses are being erected, remember to see that the roofing space is confined by building partition walls with bricks, and by concreting the bottom of borders. Make up the borders with a compost of light, turfy loam, two parts, and lime rubbish, one part. No manure will be required to be added to the compost. Extra strong wood is undesirable.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Manuring fruit bushes.—The concluding paragraph in last week's calendar referred to the pruning of Gooseberries and Currants. When the prunings have been removed, the annual manuring of the ground may be proceeded with. There is nothing better for this than farm or stable-yard manure. The better condition it is in the less quantity will be required. It should be wheeled on to the quarters during frosty weather, if circumstances permit, but as one cannot always wait for frost, the most it may be possible to do is to choose a dry day for the work. When the ground is in a workable condition, the manure should be forked-in, care being taken not to interfere with the roots more than is avoidable. If caterpillars were very troublesome last spring, it would be well to first remove 2 inches deep of surface soil immediately under each bush, burying this deeply in another part of the garden, replacing with fresh soil before adding the manure.

Raspberry canes may still be planted on heavily-manured, deeply-dug ground, in rows 6 to 6 feet apart from each other, and allowing 18 inches between each cane. The best supports are made with stout posts and strong galvanised straining wire. The

variety *Superlative* is the Raspberry most generally grown, but I learn that it is not a success on all soils, especially that of a retentive nature. *Hornets* and *Norwich Wonder* are favourites with many gardeners. A few canes of a good autumn-bearing kind should be given a place in all gardens. The new variety, *November Abundance*, is spoken of highly, and two other good sorts are *Belle de Fontenay* and *October Yellow*. Old-established stools, if not already put in order, should have the canes tied in position, allowing a space of 5 inches between each cane. Apply a good mulch of rich manure over the roots when the canes have been regulated. Autumn fruiting varieties require to be cut close to the ground towards the end of the month, and afterwards may be manured in a similar manner.

Strawberry quarters.—It is pretty general to manure the plants in the autumn, but where such was not done, it would be well to lightly fork between the rows before wheeling on any dressing so that its goodness may be washed to the roots of the plants. The variety *Royal Sovereign*, being such a rampant grower, should not be treated too liberally with manure. Those plantations made last August or September will need no manure, providing the ground was well enriched previous to planting. Do not cover the crowns when spreading.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

The making of a pergola.—If it is intended to build a pergola, the work should be commenced without delay. The choice of site requires careful consideration. It must be placed in an open situation and away from all large trees. Perhaps the best place is one that leads from one portion of the garden to another, or in the case of small gardens, near the boundary. While on the whole, in this country, its best aspect is north and south, this point must be settled by various considerations. The massive structures, with huge brick or stone pillars supporting thick Oak poles, which are often seen, appear disagreeably artificial, and a pergola composed of light iron rods and wire-work seems wanting in dignity, and is rather too flimsy except when used for a short pergola to be covered chiefly with Roses. Objections may also be raised against one composed entirely of poles on the score of its being short-lived. So that all things considered a compromise of the first and last may be recommended, using local stone for the pillars to a height of about 8 feet, and in these may be set stout poles of Oak, Larch or Elm (the latter lasts extremely well even when exposed to wet and dry conditions), and the cross pieces should be of similar material securely fastened. It is recommended that these poles be used plain and not "ornamented" with rustic devices. Eight feet in height and 9 feet in width will be found suitable measurements, as they will allow of a tall person walking without having to continually "bob" beneath the hanging growths, and three persons may comfortably walk abreast. As there will be a deal of drip in wet weather the path should be well drained and somewhat raised above the level of the outside paths. Where room can be afforded, a "finish" to the structure will be given if a border for herbaceous plants be made each side in line with the pillars. In these borders may be planted hardy Lilies and sweet-smelling plants, such as Lavender, Rosemary, and the scented-leaved *Pelargoniums*.

Suitable plants.—As this is largely a matter for individual taste it is sufficient to indicate the type of plants best adapted for furnishing these structures. Clematis, *Wistaria sinensis*, and Roses in variety are indispensable, as also are Honeysuckles, Jasmine, many ornamental foliage Vines—the new *Vitis Henryana* is very pretty—*Actinidia chinensis*, *Polygonum Baldschuanicum*, &c. When planting a new pergola the plants should be of good size so as to cover the structure as much as possible in the first season, and for this purpose many *Tropæolums* and *Nasturtiums* will be found useful.

Calceolarias and Violas.—These plants should now be stopped by pinching the shoots, at the same time clearing out any decayed leaves. After the stopping has been done keep the frames shut for a few days, and should frost be likely to occur give extra covering. When growth has again started ventilate as freely as the condition of the weather will permit. The old-fashioned *Gazania splendens* requires similar culture. It is a capital subject either for the formation of "edging" or a "ground-work," and will withstand several degrees of frost without suffering harm.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JANUARY 19.—Société Française d'Hort. de Londres Annual Dinner at Café Royal, Regent Street, W., at 6.30 p.m. German Gard. Soc. meet.

TUESDAY, JANUARY 22.—Roy. Hort. Soc. Coms. meet.

WEDNESDAY, JANUARY 23.—Croydon & Dist. Hort. Mutual Imp. Soc. Ann. Dinner.

THURSDAY, JANUARY 24.—Gardeners' Roy. Benevolent Institution Ann. Meet. and Election of Pensioners at Simpson's Restaurant, Strand, London, 2.45 p.m. Friendly Dinner at 6 p.m. Manchester and N. of Eng. Orchid Soc. meet.

FRIDAY, JANUARY 25.—Roy. Bot. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—38° 5'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 16 (6 P.M.): Max. 49°; Min. 46°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 17 (10 A.M.): Bar., 30° 6'; Temp., 48°; Weather—Overcast.

PROVINCES.—Wednesday, January 16 (6 P.M.): Max. 48° Ireland S.W.; Min. 45° England E. Coast

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY.—Border Plants, Roses, Azaleas, Liliums, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

WEDNESDAY.—Perennials, Lilies, Hardy Bulbs and Plants, at 19; 5,000 Roses and Fruit Trees at 1.30 and 4; Palms, Plants, Azaleas, &c., by Protheroe & Morris, at 67 & 68, Cheapside, E.C.

FRIDAY.—Imported and Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

We have before us the "guide Agriculture at Cambridge," conducted at the University Farm at Impington, near Cambridge, and elsewhere. As these experiments deal almost exclusively with agricultural matters, we can only allude to them in general terms, and express our gratification that matters of such supreme importance, both economically and scientifically, are in such competent hands. If it were possible, we should like to see all the results tabulated, not only in the ordinary method, but also (and eventually exclusively) in terms of the metrical system. We look to the universities and colleges to set the example and adopt a rational system of weights, measures, meteorological records, and the like, so that the results may be made easily comparable one with another and with those obtained on the Continent. For a time it would be necessary to employ both systems. The ordinary cultivator could hardly be expected to do this, but our scientific institutions might do so to their own great convenience. The experiments in breeding cereals are so interesting and so suggestive of what might be done in horticultural practice that we cite them in full:—

Experiments in Breeding Cereals.—Experiments are in progress with these crops with the object of breeding new varieties of improved yield and quality. The improvement in both cases is begun by cross-breeding suitable types. With the re-discovery of Mendel's Laws of Inheritance, the possibility of obtaining results by this method have been largely increased. One can now work on definite lines without having to leave much to chance as the older plant breeders had to do. The definite ways in which plant-characters are inherited are illustrated by the results obtained on crossing together the Wheats known as Rough Chaff and Golden Drop. The former has a *white* chaff which is felted or hairy, while in the latter the chaff is smooth and red. The cross-bred plant has felted *red* chaff, the hairiness and the colour being as pronounced as in the parents. If the grain of the cross-bred Wheat is sown the progeny consists of the following four types of individuals:—hairy red, hairy white, smooth red and smooth white chaff. These types occur in the ratio of 9: 3: 3: 1. All four types can be fixed.

Just as in this case it is possible to combine smoothness and whiteness of chaff and so produce a type of Wheat different from either parent, it would appear to be possible to effect combinations of other characters now existing separately in our cultivated Wheats, such characters, for example, as high yield, stiff straw, the power to resist disease, and good baking quality. Efforts are being made to effect such combinations.

When the work was begun in 1901 some two hundred different sorts of Wheat were grown and kept under observation. The majority of these proved useless for general cultivation under our English conditions, but some few were selected as possessing valuable characters to an unusual degree. Thus one Wheat was chosen because it was rust-resisting, a second because it promised to yield well, a third for its good straw, and so on. These selections have been crossed with Wheats which after continuous trials have proved to be of good milling quality, and step by step Wheats approaching the ideal we set out with have been built up.

Complex as the problem is, the results obtained so far indicate that it is well on the way to a satisfactory solution. Small plots of the fixed types believed to possess considerable strength are now being cultivated from which enough grain will be obtained to test in the mill and bakehouse. The best of these will be selected and grown on in quantity for distribution as soon as possible.

The experiments with Barley are conducted on the same lines. Varieties of good malting value as judged by their nitrogen percentage, as well as by the standards of the maltster, are being crossed with high-yielding types with stiff straws. A number of new varieties have resulted and those, after rigorous selection of the best, will be grown on in bulk for testing in the malt-house.

OUR SUPPLEMENTARY ILLUSTRATION OF NEVUSIA ALABAMENSIS is of special interest as showing what a lovely plant it is when used for forcing purposes. Of the large number of species which are forced into flower in early spring, few present such an attractive appearance and last in full beauty for such a length of time as the plant under notice. It is a very rare, North American plant, being only found in one locality in Alabama, and was sent to the Royal Gardens, Kew, by Prof. SARGENT, some 24 years ago, where it has proved to be perfectly hardy in the open garden. The plant belongs to the Rosaceæ, and is closely allied to the genus *Kerria*, but differs in being devoid of petals. It forms a slender shrub from 3 to 7 feet high, and flowers in the open in the months of May and June. The flowers are pure white, about an inch

in diameter, and are produced in clusters on short axillary growths, which are developed from the ripened wood of the previous year's growth. The feature of the flowers is the numerous long, white stamens, which impart to the plant a pretty "feathery" effect. The leaves are somewhat loosely disposed along the slender branches, and are from 1 to 4 inches long, $\frac{1}{2}$ to $1\frac{1}{2}$ inches broad, ovate or elliptic-ovate, serrate, and of a pale green colour. The plant is of very easy culture, thriving in a warm position in rich loamy soil, and is readily propagated from cuttings or by division. At Kew, with its attendant fogs and smoke, writes Mr. RAFFILL, the plant has never developed its full beauty in the open air, the flowers always presenting a dirty white appearance; but when, some three years ago, it was used as a forcing shrub for early spring effect in the Temperate House, it attracted much attention. An illustration of the flowers [now reproduced] was given in these pages on April 9, 1904, p. 229. It is also figured in the *Botanical Magazine* t. 6, 806.

ROYAL GARDENERS' ORPHAN FUND.—Readers interested in this excellent charity will be pleased to hear that the Lord Mayor, Sir WILLIAM TRELOAR, has kindly consented to preside at the next annual dinner of the Fund, which will take place at DE KEYSER'S Royal Hotel, Victoria Embankment, E.C., on Thursday, May 23rd next.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The sixty-seventh annual general meeting of the members and subscribers of this institution will be held at SIMPSON'S, 101, Strand, London, on Thursday, January 24, 1907, at 2.45 p.m., for the purpose of receiving the report of the committee and the accounts of the institution (as audited) for the year 1906; electing officers for the year 1907; and for the election of eighteen pensioners on the funds. The chair will be taken by HARRY J. VEITCH, Esq., F.L.S., V.M.H., treasurer and chairman of the committee, at 2.45 o'clock. The poll will open at 3 o'clock and close at 4 o'clock precisely, after which hour no voting papers can be received. During the year 1906 ELIZA NEWMAN, ANNABELLA E. HERRINGTON, EMMA FINCH, MARY ANN DITE, and ELIZABETH HARRIS, widows of pensioners, have been placed on the funds without election in accordance with Rule III., 13. The voting papers have been issued; any subscriber not having received a copy should communicate with the secretary, GEORGE J. INGRAM, at the offices, 175, Victoria Street, Westminster. We are also requested to state that the annual friendly supper of the friends of this institution will take place after the annual general meeting, on Thursday, January 24, 1907, at SIMPSON'S, 101, Strand, London. The chair will be taken at 6 p.m. by EDWARD WHITE, Esq. (Messrs. MILNER, SON, & WHITE), member of committee.

BRITISH GARDENERS' ASSOCIATION.—We are informed that at the last meeting of the Executive Council of this association, held at the R.H.S. Hall, Vincent Square, S.W., on January 8, Mr. E. F. HAWES in the chair, 28 new members were elected, making a total of 988. Reports were received from the delegates to Bath and Richmond, and a large increase in membership is anticipated. The report of the association's solicitor in regard to registration was received, and will be more fully considered at the next meeting. The question of holding a conference in connection with the annual meeting on May 29 was considered, and arrangements will probably be made to hold one on that occasion.

THE HORTICULTURAL DIRECTORY.—This annual, unlike flowers so called, is requisitioned almost daily in the Editor's room from January 1 to December 31 (Sundays and Bank Holidays excepted). We can give no greater proof of its utility. It is published at the *Journal of Horticulture* Office, 12, Mitre Court Chambers, Fleet Street, E.C., at the cost of one shilling.



Photo by C. P. Raffill.

NEVIUSIA ALABAMENSIS, HARDY SHRUB, FLOWERS WHITE.

Temple Press Ltd., Printers, 7-15, Rosebery Avenue, London, E.C.

THE WATER HYACINTH.—Those who feel keen interest in the singular balloon-like shape of the leaf-stalk and its adaptation to circumstances, those who delight in the beauty of the flowers of *Pontederia crassipes* in the Water-Lily tanks of this country, will experience something of a feeling of revulsion at hearing this attractive plant spoken of as a "noxious pest." A "weed" is a plant growing where it is not wanted, and in this sense this quaint-looking plant makes itself so objectionable in some localities in Florida and Queensland and parts of Brazil, for

the report before us, "have the most childlike faith in the efficacy of a 'Weeds Act' against weeds of every class," a state of mind arising from imperfect knowledge, and one with which we are not unfamiliar even in this country. "It is noteworthy," says the report, "that after a period of years certain weeds disappear as suddenly as they came," the conditions of growth being unfavourable at a critical period or periods, the result is the disappearance of the "weed." Spraying is not to be recommended in this case, the removal of the plant by me-

NEW SOUTH WALES.—The Year Book of this Colony for 1906 has just been issued. From it it appears that, owing to the abundant rainfall during the year, the prospects have never been brighter nor the outlook more hopeful. The annual contains a mass of information useful not only to residents but also to those desirous of settling in the Colony. The offices of the Agent-General are at 123, Cannon Street, E.C.

THE PRODUCTION OF NEW VARIETIES.—M. BLARINGHEM states in the *Comptes Rendus* for December 31, 1906, that severe mutilations made



FIG. 22.—SPRAY OF NEVIUSIA ALABAMENSIS. (For habit of plant see Supplementary Illustration.)

instance, as well as in parts of New South Wales, that a Commission has been appointed by the New South Wales Government to make enquiries and suggest recommendations. It is not to be dreaded in tidal rivers where the current is strong and continuous, but in lagoons and sluggish streams it soon makes boat-navigation almost impossible. The plant is not destitute of nutritive value for forage purposes, and it is eaten freely by horses, cattle and pigs, a circumstance to be borne in mind when attempting to deal with it. "Many worthy people," says

chanical means being alone suggested as practicable by the Committee. The Committee recommend that every landowner be compelled, at his own cost, to destroy all the Water Hyacinth on his property and in the creeks, &c., abutting thereon, within say a period of two years from the passing of the Bill. In certain cases assistance may be given from the public funds towards the eradication of the pest. The report is signed by Mr. J. H. MAIDEN, the Government botanist, as well as by an expert chemist and an engineer.

at a particular period constitute a very potent means of inducing sudden hereditary and progressive variations. The plant he experimented on was a variety of Maize.

PHOSPHATES FOR ASPARAGUS.—Asparagus shoots are stated to be rich in nitrogen (asparagine), potash and phosphoric acid, but poor in lime and magnesia. As the result of some experiments made by MM. ROUSSEAU & BRIOT, the use of phosphoric manure is indicated. *Comptes Rendus*, Dec. 31, 1906.

AGRICULTURAL EXHIBITION AT NICE.—It is proposed to hold, next March, at Nice, an international exhibition of agricultural, horticultural, and acclimatization products, to be called the *Exposition Internationale de la Côte d'Azur*. In addition to the usual gardening exhibits there will be a section devoted to packing flowers, while Vines and wines are naturally also among the subjects mentioned in the prospectus. Intending exhibitors should communicate at once with the President of the Société Centrale d'Agriculture, 113 Promenade des Anglais, Nice.

THE NORWEGIAN FLORA.—Mr. OVE DAHL has published a new edition of the late Mr. AXEL BLYTT's *Haandbog i Norges Flora*, which may be had from the publisher, M. CAMMERMEYER, of Christiania, or through Messrs. WILLIAMS & NORGATE. The work is a small 8vo. of 780 pages, entirely in Norwegian, except the names of the plants, which, as usual, are in Latin. Moreover, there are 661 illustrations, an index of Latin names, and a similar enumeration of Norwegian appellations, so that nowadays, when so much interest is felt in Norway and things Norwegian, this descriptive list will be useful, especially to those interested in Scottish and Alpine vegetation generally. The common Scotch Pine extends as far north as lat. 70° and the Spruce to 69°.

THE SWEET PEA ANNUAL.—The third edition of this annual, edited by Messrs. HORACE WRIGHT & CHARLES CURTIS, is tangible proof of the enduring popularity of the Sweet Pea and of the success of the Society. The brochure contains some useful articles by specialists in different parts of the world, and includes several portraits and other illustrations. The receipt of the "annual" and of the report and balance-sheet for 1906 of the National Sweet Pea Society again reminds us of the seventh exhibition which is to be held in the Royal Horticultural Hall, Westminster, on July 16. The schedule of prizes is published with the report, and obtainable from the Honorary Secretary, M. C. H. CURTIS, Adelaide Road, Brentford.

A NEW FRUIT FROM URUGUAY.—The last number (No. 9, 1906) of the *Kew Bulletin*, which we are glad to see appears with greater punctuality than was formerly the case, is a very interesting one. It opens with a description of a new fruit from Uruguay, which our cultivators should look after. It is the produce of a new Sapotaceous tree called by Mr. HEMSLEY *Pouteria suavis*. The fruit is described as of the size of an Apricot, yellow and scarlet in colour, and with a fragrance so delicate that it is equalled by no other fruit, whilst the flavour is extremely agreeable. It has already been introduced on the Riviera, and will, we hope, shortly be tried under glass in this country.

PLANT NOMENCLATURE.—In a recent issue we had occasion to mention at some length the international rules for botanical nomenclature adopted by the congress held in Vienna in 1905. The extracts we made were such as concerned horticulturists as well as technical botanists. Many will be glad to know that the entire text has been reprinted from the *Journal of Botany*, and may be had in the form of a pamphlet at the cost of one shilling from Messrs. WEST, NEWMAN & CO., 54, Hatton Garden, E.C. The articles which are of primary significance have their headlines printed in black-faced type, whilst the "recommendations" are in ordinary small caps., with a different plan of numbering. It would be well if those raisers who now make a practice of applying Latin names to their productions, and thus causing unnecessary trouble, would study and act up to the letter of Article 30, which enjoins the use of fancy names in ordinary language as different as possible from the Latin names of species and varieties.

CLIMATE AND VEGETATION.—KOPPEN has divided the climates of the globe under five principal headings and various subsidiary ones. The principal ones are: (1) those characterised by extreme heat (megatherms); (2) dry climates (xerophiles); (3) warm temperate (or mesotherm climate); (4) cool temperate (or microtherms), and (5) climates characterised by extreme cold (hekistotherms). Our own climate is comprised in that division of the microtherm series, characterised by the general presence of the deciduous Oaks. It comprises the whole of Central Europe, Southern Scandinavia, a large part of the basin of the Amour, Northern China and Japan, parts of the Himalaya Mountains, the northern United States, and British Columbia. Speaking generally, the climate of this region is congenial to the Anglo-Saxon race, and plants derived from these districts are in the main likely to be hardy in Britain. Northward of the region of deciduous Oaks is the climate of the Birch, comprising the north of Scandinavia, Russia, Siberia, and Canada. The summers are short, but light and hot; the winters are severe. The population is robust and accustomed to hard labour in order to secure for themselves the products of the soil. In the hekistotherm climate, the conditions are still less favourable to human beings and to the cultivation of the soil. Local conditions—the existence of high mountains, of heavy or light rainfall, and the nature of the soil—must of course be taken into consideration.

MISSOURI BOTANICAL GARDEN.—The seventeenth annual report has been issued. It comprises a brief history of the garden bequeathed by an Englishman, Mr. SHAW, to the city of St. Louis, and especially a report of the work done during the year ending October 10, 1906. It also contains sundry communications, chiefly of botanical interest, amongst them one by Mr. Ht's on the experimental production of fasciation in *Oxalis crenata*. In this paper it is stated that high manuring has a tendency to cause the development of this peculiarity, and other instances are given where excessive nutrition has brought about such a condition. Experiments made in the Missouri Garden show that fasciation may be induced in some plants by the following method. When the plant is beginning to show flower, it is kept as dry as possible. The flowering period will be shortened by this means, and the buds near the end of the spike will remain undeveloped. If now the plants are abundantly watered, and manure water be occasionally applied, numerous fasciations will make their appearance. Sudden renewal of growth and increased influx of sap after a period of relative inactivity are, according to this, the causes to which fasciation is to be attributed. The last abnormally hot and dry summer in England, followed as it was by copious rainfall, ought to have been productive of malformations of various kinds, but, so far as our experience goes, they were not by any means unusually frequent.

SOUTH AMERICAN BEECHES.—Mr. BEAN contributes to the last number of the *Kew Bulletin* some remarks on the S. American species of *Fagus*. *F. obliqua* was introduced from Chile by Mr. ELWES, and there is every probability that it will prove hardy in the southern counties of England and Ireland. *F. betuloides* is represented by a fine tree at Pencarrow (Cornwall), where it is described as one of the striking and ornamental of hardy trees. *F. antarctica* var. *uliginosa* is also in cultivation at Kew from seed supplied by Mr. ELWES. The Chilean forests are being rapidly destroyed by axe and fire, a circumstance that renders it more desirable to investigate and cultivate these trees in suitable localities. Some of them furnish valuable timber.

THE JOURNAL OF THE R.H.S.—The December part of the Journal, completing the thirty-first volume (1906), has just been issued under the editorship of Mr. Geo. S. SAUNDERS. Although so belated that a large portion of the matter has been forestalled, yet there are many who will be glad to have the details in connected form; for instance, there are many who will be interested in Mr. SALMON's article on the American Gooseberry-mildew and the need for legislation, and they will read with attention the account by Prof. ERIKSSON of the means taken to combat the mildew in Sweden. The "notes and abstracts" which form so valuable a feature have been more judiciously selected than before, so as to exclude those notes which have no special reference to practical horticulture.

THE PREVENTION OF CORRUPTION ACT.—We have received a copy of a letter from a well-known and highly-respected proprietor to an equally-esteemed firm of nurserymen:—"Lord — begs to call Messrs. SO-AND-SO's attention to the fact that by the Prevention of Corruption Act, 1906, tradesmen are not allowed to give any commission or gratuities to servants. This rule must be strictly observed." In some large establishments, no doubt, the wages of the upper servants will be increased in compensation for the loss of "commissions," but in the case of the smaller gardens it is to be feared that the gardener, already much underpaid, may often find his income reduced. The British Gardeners' Association will doubtless give serious attention to the subject.

"HERBS FROM THE GARDEN ON THE HILL."—Some curiosity has been expressed as to the herbs that were placed on the coffin of the revered Baroness BURDETT-COUTTS. We are informed that they comprised Winter Savory, Sage, Common Thyme, Lemon Thyme, and Rosemary.

TROPICAL CULINARY PLANTS.—In the last number of the *Journal d'Agriculture Tropicale* we find the report of a lecture by M. BOIS, dealing with various plants used for culinary purposes in Indo-China. Among them are the young shoots of the Bamboo (*Bambusa vulgaris* and others), of which the central portions are esteemed as a vegetable either cooked or pickled. The bulb-like extremity of the stem of another grass, *Hydrophyrum latifolium*, is also used. The Chinese Cabbage, or Pe Tsai, often mentioned in these columns, is also noticed. Among other plants the leaves of which are utilised as food are *Ipomœa reptans*, an aquatic plant, which, as also *Neptunia oleracea*, is used as Spinach is with us. The "Cabbage" or terminal bud of the Areca Palm forms an excellent salad. Various Gourds, the Water Chestnut (*Trapa cochinchinensis*), and the young pods of *Dolichos sinensis*, and of *Psophocarpus tetragonolobus*, are utilised. The seeds of *Phaseolus Mungo* contain a large proportion of nitrogenous matter. They are used by the Siamese under the name of Gia. These seeds are allowed to germinate, and the young sprouts are eaten as a delicacy. The Soy Bean, *Glycine hispida*, is also very nutritious, and is largely used in the East prepared in various fashions. Lastly may be mentioned the seeds of *Nelumbium speciosum*.

WINTER SPRAYINGS FOR SCALE.—We are glad to see that the Duke of BEDFORD and Mr. SPENCER PICKERING have issued, as a separate pamphlet, a summary of the Sixth Report of the Woburn Experimental Fruit Farm, on winter sprayings for scale, of which a review was published in our issue for November 24, 1906. The pamphlets can be obtained, post free, at the price of 2½d. each from Messrs. EYRE & SPOTTISWOODE, East Harding Street, Fleet Street, E.C.

GATTON PARK.—Local journals are full of the doings at Gatton Park, Reigate, on the occasion of the coming of age of JEREMIAH COLMAN, the son of the generous owner of the historical estate we have mentioned, and well known to our readers as an enthusiastic cultivator of Orchids. In addition to munificent donations to local charities and entertainments to the children and old folk of the parish, Mr. and Mrs. COLMAN entertained their friends and neighbours in princely style, the decorations of the famous marble hall and other apartments being made by Mr. BOUND. Palms, Calanthes, Sophronitis, Cyrtopodiums, Zygopetalums, and other Orchids mixed in with Asparagus Ferns, Anthurium Andreanum, Moschosma reparium, and other decorative plants were used with excellent effect.

JAMAICA.—The awful catastrophe that overtook the town of Kingston, Jamaica, on Monday last raises apprehension as to the fate of Sir DANIEL MORRIS, Mr. W. FAWCETT, and others of our correspondents who were assembled in conference to promote the agricultural development of the island. Sir DANIEL MORRIS, who has done so much to stimulate West Indian progress, was to have presided at the congress. According to the latest reports none of the visitors except Sir JAMES FERGUSON was killed.

MONUMENT TO COUNT KERCHOVE DE DENTERGHEM.—We have received from M. ALEXIS CALLIER, President, and M. ALBERT CEUTERICK, General Secretary, of the Ghent Société Royale d'Agriculture et de Botanique, the following letter:—"Immediately after the death of our lamented President, the late Count DE KERCHOVE DE DENTERGHEM, his many friends, unanimous in their feelings of admiration and gratitude, decided to erect a monument to his memory. The committee that has been formed with this object includes the most distinguished representatives of Belgian and foreign horticulture. We invite you to contribute to the fund which the committee has opened and to aid in collecting the funds necessary for the erection of this monument. By speech and pen, with indomitable energy, and by the influence of his name, the Count DE KERCHOVE DE DENTERGHEM rendered to scientific and practical horticulture services the remembrance of which should be perpetuated. The Society itself must not forget all that it owes to him. You, sir, can form an opinion of the enormous development that he has effected in our quinquennial exhibitions (*Florales*) and the important works executed under his direction to secure an equal measure of success for future exhibitions worthy of the Society that organises them. As Belgians and citizens of Ghent we have a right to be proud of the reputation which his efforts have earned for our country and for our dear and beautiful city of Ghent, thus firmly establishing the world-wide reputation of our horticultural industry." We are convinced that among the numerous British visitors to the Ghent quinquennials who enjoyed the friendship and hospitality of the Ghent Society and its learned and genial President, there must be many who will be glad to contribute their tribute to the memory of this distinguished horticulturist, and to show their sympathy and gratitude to the great Society over which he presided. Contributions may be sent to Dr. MAXWELL MASTERS, F.R.S., 41, Wellington Street, Covent Garden, W.C.

PHYLOXERA IN KENT.—It is now some time since we have seen any Phylloxera in our houses, but we regret to say that some affected roots were lately sent to us for examination from a vine in Kent. These vines will be destroyed by fire, the borders turned out, mixed with sulphur and burnt, the house thoroughly disinfected and not used for vines again. No one but those actually employed in the work of destruction should be allowed to enter the affected vineyard, and they should be debarred from access to any other house where vines are growing. Drastic and prompt measures of this kind will, we know, suffice to stamp out the disease.

THE AMERICAN GOOSEBERRY-MILDEW.

In your account of my lecture at the meeting of the Royal Horticultural Society last week you have fully reported Mr. Massee's criticisms and opinions which he gave after the lecture, but you have omitted the replies which I gave. I must ask now for space to repeat here what I said, and I take this opportunity of mentioning that in the future I shall not attempt to deal with statements on this disease made by Mr. Massee in his private capacity.

(1) Mr. Massee stated that since spraying has come into vogue in the States the mildew has been rendered comparatively harmless; my statement that the mildew practically prevents the commercial cultivation of our Gooseberry in the States Mr. Massee characterized as "one of historical interest only, and without meaning at the present day." I need only state that I have received a letter, written a few weeks ago, from Prof. B. T. Galloway, Chief of the Bureau of Plant Industry, U.S. Dept. of Agriculture, with the following information: "Only a few varieties of European Gooseberries are grown in this country commercially, and these have never been

indigenous in Russia." Here Mr. Massee is relying on the early opinion held by Prof. Jaczewski: to use his own words, Mr. Massee's statement "must be considered as of historical interest only, and without meaning at the present day." If Mr. Massee will turn to the Report laid before the Seventh International Congress of Agriculture (Rome, vol. ii., p. 442 [1904]), he will see that Prof. A. de Jaczewski—the scientific adviser to the Russian Government, and the only mycologist who has investigated the disease in Russia—has published here the latest evidence. This evidence has caused Prof. Jaczewski to alter his previous opinion, and he now states that he is convinced that the disease has been brought into Russia on Gooseberry plants imported from America. I adhere to my statement that this disease was unknown in Europe until about 1900, when it was imported from America, and that it must be treated as a dangerous, highly infectious disease of which hitherto English growers have had no experience.

(3) In December Mr. Massee stated in the *Evesham Standard* that the mildew "can only thrive in damp climates." Now, in January, Mr. Massee states that it requires "special weather conditions such as were experienced in this country last year," i.e., *very dry weather*. As a mat-

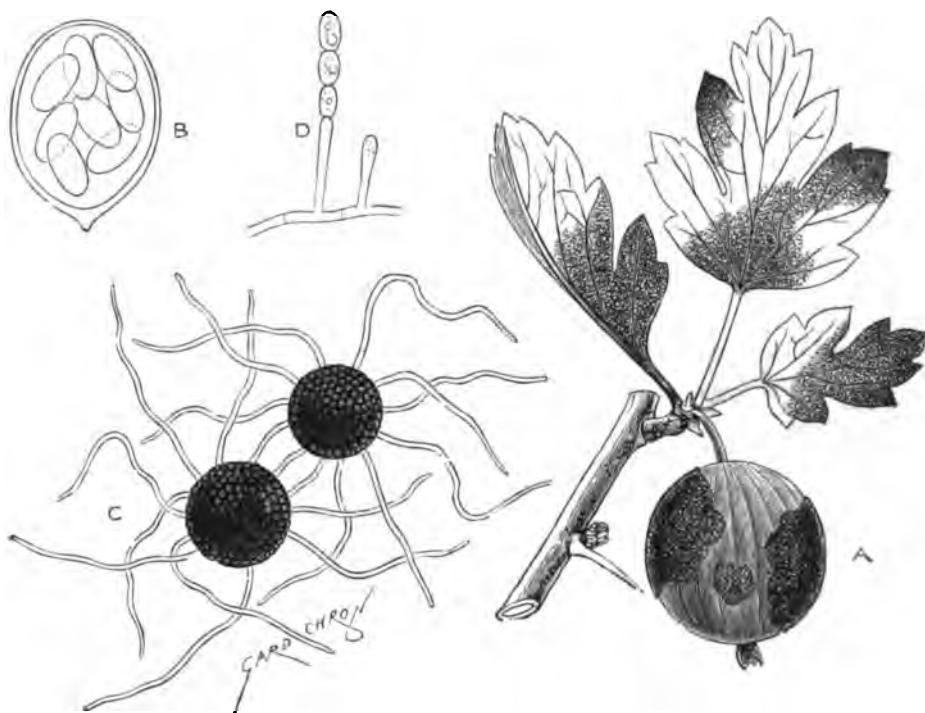


FIG. 23.—AMERICAN MILDEW ON GOOSEBERRY.
A, mildew on berry and leaves; B, winter-spores in ascus $\times 400$; C, winter-capsule (perithecium $\times 100$ and spore threads); D, summer-spores conidia.

important." Thus we see that, notwithstanding the thorough spraying which the American grower employs, it is still only in a few localities that it has been found possible to grow our Gooseberry, and even this applies only to two or three varieties; elsewhere the mildew entirely prohibits their profitable cultivation. Further, there is now the established fact—and Mr. Massee knew this—that the fungicide (liver of sulphur) which has been found to be the most efficacious in the States is being found to be comparatively useless in European countries. It is expressly stated by Prof. Eriksson, as being the experience of growers in Sweden who have tried spraying—and I am told the same is the case in Ireland—that this fungicide fails when applied to our tenderer European varieties; in the first place, it may cause injury to the leaves and fruit; in the second, it fails to destroy the fungus because of the increased virulence of the latter, due to its reaching a new Continent.

(2) Mr. Massee said that my statement that the disease is new to Europe, and introduced from America, is not supported by facts. I rely on the evidence published by Prof. Eriksson and Prof. A. de Jaczewski, and on the information I have myself collected. Mr. Massee does not publish his evidence, only stating that "some European experts consider that the mildew is in-

ter of fact, from the detailed reports sent to me by gardeners in Ireland, which I have published,* describing the weather conditions under which the continued spread of the disease has taken place from 1900 to 1906, and having regard to the rainfall in the fruit-growing districts in England, there is not the slightest reason to expect that the climates of Ireland and of England will prevent the disease from assuming that epidemic proportion which it has already assumed in the dry regions of Sweden and of Prussia.

(4) Mr. Massee said at the meeting that the disease was already "here and there" in this country, and that, consequently, it was too late to talk of keeping it out by legislation. But when I asked Mr. Massee to tell the meeting of any place where it existed except in Worcestershire, he remained silent. Mr. Massee stated, too, as you report, that, "some Gooseberry growers have expressed the opinion that they have known the mildew in this country for many years. These may not be convincing, but they have not been proved to be wrong." Mr. Massee admits that this evidence may not be convincing, yet he is content to give credence to it, without taking pains to test its scientific

* *Journ. Roy. Hort. Soc.*, vols. xxv., xxvi., xxvii., xxix., and last volume.

value. As a matter of fact, I have investigated the two cases to which Mr. Massee referred, and I find that both are unsupported by any scientific evidence.

The Board of Agriculture has at last recognised the serious nature of the danger; they state in their recently-issued circular that "the disease is of a very serious character, and has rendered the culture of Gooseberries unprofitable and practically impossible wherever it has appeared." That is one important step in the right direction. The second important step will be taken when the Board recognises the fact that the mildew is a new epidemic disease lately introduced into Europe, and now for the first time beginning to destroy the Gooseberry in England, and when it impresses on growers the necessity for treating it as such by immediately stamping it out at the cost of the burning of diseased bushes. Let them make the growers realise that unless the outbreaks are dealt with in this way during the next few years, the same devastation will result as when the closely-allied Vine-mildew was introduced into Europe in the same way from America. So long as the Board allow doubt to remain on this point, some growers will certainly be inclined merely to watch the disease or to experiment with it, and then the disease will rapidly increase in England.

Finally, with regard to legislation. I have seen the mildew on recently-imported standard Gooseberries in a nursery, where the surrounding plots of Gooseberry bushes were healthy. Again, I have ascertained the fact that in the district of Worcestershire, where I discovered the disease in commercial plantations, bushes had been imported from the Continent. The disease is steadily increasing its area on the Continent. I can vouch for the fact that in Kent, and also in other fruit-growing counties, a number of growers are now in the habit of importing Gooseberry bushes direct from the Continent. Is it not obvious that a mere warning as to the danger of importing at the present time would either not reach, or would be disregarded by many importers, and that prompt legislation temporarily forbidding importation can alone save the creation of fresh-infected areas in this country?

Mr. Massee misses the point curiously; he says that the disease, from my own statements, "is most abundant in those countries where legislation against diseases is most stringent," that is, in the States. I am not aware that there is any special inter-State law against the disease; and when we remember the fact (when will Mr. Massee recognise this fact, which every other mycologist recognises?) that the American Gooseberry-mildew is a *native* of the United States, occurring in practically all States on no fewer than twelve wild native species of *Ribes*, this is not in the least surprising. And it does not affect my statement at all that the disease could be kept out of England by legislation.

In conclusion, I wish to state that I must now leave the matter here. I have pointed out to growers the scientific aspects of the case, I have emphasised the present danger, I have given authorities for all my statements. I have repeatedly urged that immediate legislation is necessary to deal with the disease. It depends now to a large extent on growers; do they care to exert themselves to obtain from the Board of Agriculture the necessary protective measures? *E. S. Salmon, Wye College.*

—We are requested to publish the following letter from our veteran mycologist:—"I have been asked to state my views on the discussion at the meeting of the R.H.S. on this subject. I regret that ill-health, combined with the weakness of increasing age, prevented my attendance on the occasion in question. I have very little faith in legislative enactments, but very great faith in persistent and intelligent individual action. My conclusion would be that expressed at the bottom of p. 24 of the last number of the *Chronicle*: 'Watchfulness and prompt and specially combined action on the part of the growers, will do more than any Act of Parliament to keep the American Gooseberry-mildew in check.' *M. C. Cooke.*"

—I am not an expert in recognising this disease, nor have I seen it that I know of in Europe, but I have taken special interest and notice of fruit-growing in two visits to America,

and I think people in this country hardly realise the condition in Canada and United States as to the Gooseberry. Unlike in this country, where Gooseberries are grown plentifully and in almost every garden in America one hardly sees any plants, and they are almost always unthrifty, and I believe I should be right in saying they are hardly ever on sale in shops; it is more like two or three bushes in an occasional garden. If a traveller were to ask why this is, he would be told that the native Gooseberry is but a poor little fruit, and that the European variety does not thrive because it is so susceptible to this mildew. On the trial grounds of agricultural colleges it is quite likely their Gooseberry bushes are sprayed with potassium sulphide; even in these experiment stations the Gooseberry is grown in very limited quantities, and I think very few other people spray, but consider it hopeless to try and grow Gooseberries to do any good.

Whilst speaking of the American Gooseberry, I think it would be well for growers in this country to remember that there is a most serious Plum disease in North America, the "Black-knot," which attacks the stems and twigs, something like the Beefsteak fungus with us, but black, and occurring all over the tree; this attacks the European and American Plums, but not the Japanese. In Nova Scotia there are "Black-knot" inspectors, who warn those growers who neglect to prune it out of their trees to attend to the matter, and if they do not the inspector does it and charges the grower for the time occupied. It may be asked whether the growers approve of this somewhat paternal method; on making enquiry one finds they do agree with the system and support it. *Cecil H. Hooper, Shortham, Kent, January 12, 1907.*

—A number of scientists appear to regard the introduction and spread of this new pest with perfect composure, if not, indeed, with absolute pleasure, as affording an interesting field for observation and experiment, and, therefore, deprecate any Governmental interference or constraint in the matter. They tell us that there is no need whatever for alarm, as "the resources of science" are fully equal to the occasion, and that all fungoid enemies may be dealt with by means of spraying and other measures, appearing to entirely overlook the immense addition to the expenses of production which these measures will involve. We must also remember that the Gooseberry is par excellence the fruit of the cottage-gardener, giving the largest return in proportion to outlay of any British fruit, and is for this reason his mainstay for eating and culinary purposes during its season. Our up-to-date gardeners, professional or commercial, will no doubt rise to the occasion and do all that can be done under the circumstances, but among allotment and cottage gardeners there will probably not be 5 per cent. possessing means to purchase apparatus and fungicides, coupled with knowledge and skill to apply them. The outlook at present is that the Gooseberry as a cottager's fruit will shortly disappear, and the country will thus be deprived of a cheap and wholesome food product, entailing a financial loss of which few have any conception. I would wish, in conclusion, as a practical man, to ask those who advocate individual in opposition to State-aided effort how, in the present state of the law, they propose to deal with the grower who has diseased bushes and refuses to treat or destroy them? I could name plenty of sturdy "Arcadians" whose ignorance is only equalled by their intense dislike of interference and readiness to resent it, and should be much interested to hear how prompt action is to be secured in their case. *Charles E. Pearson, F.L.S.*

PLANT-NOVELTIES IN 1906.

(Continued from page 27.)

As with the Orchids, so in respect to other plants, most of the new introductions of the past year have been obtained by the exercise of the florist's art. But in glancing over the list of illustrations of new and interesting plants given in the *Gardeners' Chronicle* during 1906, it is clear that a large number of rare species have still to take their place in gardens when the stock of them is sufficiently large to admit of their distribution.

Especially is this the case with the fine new Conifers, and other plants introduced by Mr. E. H. WILSON through Messrs. JAS. VEITCH & SONS from China, many of which are perfectly hardy, and destined to add new features to our garden scenery. Among the plants certificated to Messrs. VEITCH during the past year are *Buddleia asiatica*, *Vitis Henryana*, *V. armata* Veitchii, *Kalanchoe Dyeri*, a pretty greenhouse plant from Nyassa; and *Begonia elatior*, a bright rosy-carmine, semi-double form of their useful section of winter-flowering *Begonias*.

FERNS.

Mr. H. B. MAY, of Upper Edmonton, takes the lead in new Ferns, having secured awards for *Nephrolepis exaltata* superba, *Davallia elegans* Mayi, *D. solida* superba, and *Polypodium phymatodes* corymbosum.

Messrs. J. HILL & SON, Lower Edmonton, who cultivate many rare species, and whose magnificent group, containing large specimens of *Gleichenias*, formed such a feature at the Temple Show, exhibited several novelties, their *Davallia canariensis elegans* securing an Award of Merit.

Messrs. ROCHFORD, Turnford Hall Nurseries, produced the fine *Nephrolepis Todeaoides*; and Mr. PRICKETT, of Tottenham, the new *N. cordata* tessellata.

HIPPEASTRUMS.

Major G. L. HOLFORD, C.I.E., C.V.O., West-birt, Tetbury (gr. Mr. Chapman), from his magnificent selection shown on April 3 at the Royal Horticultural Society, secured Awards of Merit for *H. Agamemmon*, scarlet with white band; *Brian Boru*, the best crimson self; *Field Marshal*, orange-scarlet; *Margery*, scarlet with white margin and centre; and *Pearl Maiden*, mottled red and white.

Messrs. R. P. KER & SON, Liverpool, whose strain is remarkably fine and distinct, showed a group at the Temple Show and secured Awards for *H. Jasper* and *Madder Rose*, two very handsome varieties.

BEGONIAS.

Begonias have been recruited by varieties from the various specialists, Messrs. BLACKMORE & LANGDON securing Awards for *Begonias* Alice, Mrs. J. B. Langdon, Millicent, Purity and Miss May Sutton.

THE NARCISSUS.

deservedly one of the most popular, as it is one of the most beautiful garden flowers, has its already large number added to by N. Mrs. Robert Sydenham (Miss CURRY, Lismore); N. Brillancy (Rev. G. H. ENGLEHEART); and N. The Rising Sun (W. WELCHMAN, Esq.), April 3; the new N. Pearl of Kent, from Mr. G. P. HAYDON, Canterbury; N. Warleyensis (Miss WILLMOTT), and N. odoratus rugulosus maximus (Messrs. BARR & SONS), which gained Awards of Merit, April 17; N. Eoster (Mr. A. M. WILSON), N. Masterpiece (Messrs. BARR & SONS), and N. Princess Ena (Messrs. R. H. BATH, LTD.), similar awards, May 1; at the same meeting Mr. C. G. VAN TUBERGEN, jun., Haarlem, getting awards for the fine *Tulipa Fosteriana* and *T. Greigi alba*. The Midland Daffodil Society, April 25, also gave a First-Class Certificate to *Narcissus* Mrs. Ernest Crosfield, and Awards of Merit to N. Erda, N. Fiona, all three from E. M. CROSFIELD, Esq.; N. Red Ensign (Messrs. J. R. PEARSON & SON), N. Masterpiece (Messrs. BARR & SONS), and N. Eoster, from Mr. A. M. WILSON.

Chrysanthemums, Dahlias, Carnations, Roses, and all the other great decorative classes of florists' flowers have been greatly improved by the various workers, among them specially successful being Mr. J. DOUGLAS and Messrs. CUTBUSH & SONS in Carnations; Messrs. KELWAY & SON, Langport, in Delphiniums, Gladioli, and their other showy specialties; Mr. AMOS PERRY, with *Nymphæas* and hardy perennials; Messrs. WALLACE, of Colchester, with bulbous and other hardy plants; Messrs. WELLS & Co., Merstham,

who are specialising Chrysanthemums and have several new single forms of great decorative merit; Messrs. JOHN WATERER & SONS, Bagshot, with some charming new Rhododendrons; and other specialists with many novelties.

There is still a very large number of very beautiful novelties in the hands of the large seed firms, who would be well advised to show at the Royal Horticultural Society new and pretty annuals and other plants raised from seeds. The catalogues of Messrs. Sutton & Sons, Messrs. Jas. Veitch & Son, Messrs. Carter & Co., Messrs. Cannell & Son, Mr. Robert Sydenham (especially in Sweet Peas), Messrs. Webb & Son, and other great seedsmen are teeming with good novelties and improved strains of leading sections, which would make a fine show if grown for exhibition.

(To be concluded.)

NOVEMBER AND DECEMBER IN MY FLORIDA GARDEN.

(Continued from page 27.)

The day-blooming Jasmine (*Cestrum diurnum*) is represented in my garden by several large bushes. The flowers are white, very fragrant, reminding one of the perfume of *Stephanotis floribunda*. The plants are almost always in bloom, and they form the happy hunting ground of numbers of insects, particularly bees, butterflies, and moths. Another variety of *Cestrum*, one of my favourite shrubs, and apparently a hybrid between *C. nocturnum* and *C. aurantiacum*, presents a fine show near the verandah. The colour of its terminal flowers, which appear in dense clusters, is a dull shade of orange-yellow, and the perfume exhaled by them in the evening is very refined and aromatic. I grew the plant from seed received from Sir Thomas Hanbury, La Mortola, Italy. These *Cestrum*s are great acquisitions in my garden, and the powerful fragrance of the two first-named specimens is wafted by the gentle breezes to quite a distance. *Cestrum aurantiacum*, with yellow flowers, and *C. elegans* and *C. Boudouxi*, the two last named tall-growing, half-climbing plants, with reddish flowers, also flower profusely in November.

CLIMBING PLANTS.

The verandah is ablaze with climbers, *Antigonon leptopus*, the "*Rosa montana*," being a sheet of the brightest, most vivid rosy-red imaginable. A large specimen of this climber in full bloom is a glorious sight, and one only surpassed by the glowing orange-yellow of the even more rampant *Bignonia venusta*, which is usually in full bloom at Christmas and at the commencement of the New Year. These two climbers are the most showy and conspicuous of their class, and can be seen from a great distance, lighting up the landscape in a most exhilarating manner. Tourists usually exclaim at the exuberant beauty of these plants. *Allamanda Hendersonii* and *A. Schottii*, both bright yellow and in full bloom, are always exquisite. In the halcyon days of midsummer and in sultry weather they are, however, more prominent than later in the season, when they have to compete with not only the *Antigonon*, but the white-flowering *Thunbergia fragrans* and the blue-flowering *Thunbergia grandiflora*, which is a very vigorous grower, with large and beautiful foliage, &c. A more delicate trailer we may notice in the blue *Solanum Seaforthianum*, with fine clusters of sky-blue flowers delicately infused with a peculiar perfume. It is never out of bloom, and its clusters of brilliant red berries add greatly to its charm. The white-flowering *Solanum jasminoides*, the "*Potato vine*," as people call it here, is also covered with flower-trusses. It is a valuable climber, but it can neither rival the blue species nor the large-flowering *S. Wendlandii*, which, however, only flowers in our summer's blazing heat. All the true Jasmynes are now more or less covered

with blossoms, filling the air with their redolence. The most showy of them all is the Star Jasmine (*Jasminum gracillimum*), a scentless species, but a most profuse bloomer and a rampant climber. The flowers are pure white, starry in shape, and appear in conspicuous clusters. The Malayan Jasmine (*Trachelospermum jasminoides*) is a spring bloomer, but it flowers usually for a second time in November, its delicious spicy perfume being perceivable wherever large plants grow. It is a fine evergreen vine, with dark green foliage, and one of the noblest climbers among exotic plants, being only outrivalled in density of growth, fragrance, and brilliancy of bloom, and poetic associations and sentiment by our native Carolina Jessamine (*Gelsemium sempervirens*), which begins to open its first bright yellow trumpet-shaped blossoms a few days after Christmas, when it pervades the air with a delicious wild wood odour. Stumps and trellises are covered with *Thunbergia alata* in many colours, and our native Moon-flower (*Ipomoea Bona-nox*) is frequently used to screen unsightly places and outhouses with its enormous masses of foliage. Though at its best in midsummer, it is still covered with its large, pure white, strongly-scented blossoms. Being a native and a rather coarse grower, it is not planted here as frequently as its beauty and its fragrance entitle it to be. *H. Nehrling, Florida.*

(To be continued.)

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

TAR AS AN INSECTICIDE.—I have recently used for the winter dressing of Vines a mixture of tar and clay, and it is a very cheap insecticide and very effectual, especially in destroying mealy bug. I have used it more or less during 20 years on Vines and Peach trees; also on plants such as *Allamandas*, *Dipladenias*, *Fuchsias* and *Bouvardias*, after pruning. I consider it to be a good all-round insecticide for treating any deciduous plant or plants that can be pruned back. I believe it to be a good remedy for canker in Apple and Pear trees. Many cultivators are afraid of tar, but the reason for this is because they do not know how to mix it, and the right proportions. *John Willis, Upper Lodge, Hollywood, Portishead, near Bristol.* [Kindly state the proportions you use, and whether Stockholm or gas tar?—Ed.]

BEGONIA GLOIRE DE LORRAINE.—I grow four varieties of this Begonia here; three have pink flowers and one is white. Although I have seen seed-pods on them previously, I have never troubled about saving them, although this year I did intend to try and raise seeds if any pods were found. Since Mr. Cromwell's notes have been published in these pages I have carefully looked over the plants for seed-pods, and on the two earliest batches, that are quite over and shabby now, I have found 12 to 15 ripe pods, the seeds of which I have already sown. On the dwarf pink variety, which grows about a foot high here, I counted 40 pods on two plants, and other plants of the same variety have 10 or more pods each. I have also counted as many as 12 pods on some plants of the white variety, although some of them have not quite finished flowering. About the other two varieties I cannot say much yet. One, a large-flowered, pink variety, is at its best now, and the other, a more slender grower, but a deeper shade of pink, is a splendid one for suspending. I do not expect to find many pods on them yet, as I find, like *W. N.*, that all the seed-pods are terminals. Not in one instance have I found a seed-pod other than a terminal. Therefore, I do not think anyone will find any pods until the plants have flowered themselves right out. I myself do not think that "atmospheric surroundings" make any difference, for I have some plants hanging up in the stove, a good number of plants on a stage against a back wall of the stove, and some in a small span-roofed house, all carrying seed-pods. I discovered two pods on one of the large-flowering plants. Some of the individual flowers on this variety measure

2 inches in diameter. As Mr. Cromwell says they come with finer blooms from seed, should I succeed in raising some of this large-flowering one from seed, they should be exceptionally fine. I may say all the plants here have been raised from cuttings. *R. Goodbourn, Ankerwycke Gardens, Wraysbury, Bucks.*

I also have discovered numerous seed-pods on some plants of this Begonia, grown under conditions similar to those related by *W. N.* We have plants growing in 6-inch pots, suspended from the roof of a warm greenhouse, and they have been in a somewhat starved condition for some time. In this case, also, all the female blooms are terminals. *C. S., Tyntesfield Gardens, Bristol.*

In 1901 I found a female flower on one of the plants of this Begonia and I fertilised it with a small camel-hair brush. I sowed the seed, which looked more like fine dust, in February, 1902, but only one seedling appeared; I kept it for some time in an atmospheric temperature of 70°. In September I removed it to a cooler house, the heat being 50° to 55°. The plant flowered in a 3½-inch pot. At this stage of growth I took it to a meeting of the Bristol Gardeners' Debating Society. Not being a member at the time no award was given. I potted the plant on into a 5-inch pot and showed it again in the spring of 1903, when the seedling was awarded a special Certificate of Merit. It is a wonderfully free flowerer and produces seed-pods freely. *Chas Wakefield, Elmfield Gardens, Westbury-on-Trym.* [Our correspondent has sent flowering sprays of an excellent variety, on which a few of the terminal flowers are female, and have set seeds.—Ed.]

MEGACARYON ARMENUM (see p. 28).—When in flower this plant has a somewhat imposing appearance. From a large rosette of hoary foliage rises the branching pyramidal inflorescence. In deep soils flower-stems 3 to 4 feet high are produced with numerous characteristic scorpioid racemes of flowers, the preponderating colour of which is pale, purple-tinged rose. At its best *M. armenum* is not a plant to please all tastes, possessing, as it does, an unrefined appearance without the redeeming feature of a decided colour. The seeds, though considerably larger, resemble those of a *Lithospermum* and are exceedingly hard, but it is by no means essential to remove the outer integument as germination is very little accelerated thereby, and there is considerable danger of the kernel being damaged in the process. Besides this easy means of increase, propagation may be effected by cuttings of the thick, semi-woody roots. The young portions should be selected, those about ½ inch in diameter are best, and pieces 3 inches long should be inserted in sandy soil, taking care to retain the thicker part, or that part which was originally nearer to the crown, uppermost. The operation may be performed in early autumn or spring, and watering should be done sparingly until growth commences. Several crowns will be formed, but it is advisable to remove all but one, the strongest, which, in the course of 12 months, will produce a rosette of leaves 1½ to 2 feet across; flowers may be expected in the next or succeeding year. *E. Horton, Neston, Cheshire.*

TULIP TREE.—When I wrote my note about the beautiful (and, to me, unknown) form of the saddle-leaf Tulip tree [see p. 28], found in the old Dutch book, it was after looking at the plate by lamplight, when its colouring seemed to me to be deep rose, but when seen by daylight it appears to be deep orange, and like a beautifully-feathered Tulip. It is figured on the same plate with a flower of a bulbous Tulip to show how much alike they are. When I first looked at it, and before I noticed the saddle-shaped foliage, I thought they were two Tulips. *W. E. Gumbelton.*

EUPHORBIA (POINSETTIA) PULCHERRIMA.—I enclose two bracts of *Euphorbia (Poinsettia) pulcherrima*. Some of the bracts measure 16 and 17 inches across. We grow three to four hundred plants annually. As decorative subjects for the conservatory and for drawing-room decoration we find them most valuable. When cut the stems are placed for a time in boiling water 3 to 4 inches in depth, and they will afterwards last in good condition for two to three weeks in water. *C. E. Martin, The Hoo Gardens, Welwyn.* [The specimens exhibit excellent cultivation.—Ed.]

VICTOR HUGO.—On page 11 in a recent issue is a paragraph relating to the greatest Frenchmen, with Pasteur and Victor Hugo as the two most prominent. Had this census of opinion been taken some years back, I have not the slightest doubt that Victor Hugo would have led the way. Perhaps it may interest some of your readers to know that I am in possession of an autograph letter and photograph sent to me by Victor Hugo, when he was an exile at Hauteville House, Guernsey, in May, 1868, and I believe I am the only man in possession of such an autograph from so great a Frenchman, an autograph his then private secretary told me kings and princes would give any money to possess! *Victor Hugo Lucas, Boro' Forester and Gardener, County Boro', Barrow-in-Furness.*

GLAZED POTS FOR THE GROWTH OF PLANTS.

—I remember many years ago that the use of glazed pots for the growth of plants was strongly advocated by many good cultivators, amongst others (if my memory serves me right) Mr. David Thomson. A strong case in favour of the glazed pot was presented, but the prejudice against it in those days was too strong, and the subject has not been discussed much since. But now I find that the glazed flowerpot is again finding favour with many excellent cultivators, and that in a quiet way it is effectively ousting the ordinary porous flowerpots, more especially from that section of the plant-department devoted to the growth of plants for house and conservatory decoration, where cleanliness is of so much importance. I must confess that, in common with most gardeners, I shared the prejudice against the glazed pot, holding the opinion that the non-porosity of the clay in this pot militated against the well-doing of the plant, in so far that it tended to restrict the quantity of air which penetrated the soil, and also that more frequent waterings were necessary (!) by this kind of pot not being so great an absorbent of moisture. However, on visiting, a short time since, the beautiful gardens of Mr. and Mrs. Leopold de Rothschild, at Ascott, Leighton Buzzard, I formed a more favourable opinion of the merits of the glazed pot by the convincing fact there presented of thousands of winter-flowering and foliage plants growing as luxuriantly in these pots as ever I have seen plants grow in ordinary pots. They were pictures of good culture, and included Crotons, Dracænas, Palms, and other fine foliage plants; also Carnations, Begonias, as well as a general collection of winter-flowering plants. Mr. Jennings speaks highly of them, and is increasing his stock. The only serious objection, it seems to me, which can be raised against the extended use of this pot is on the score of cost. They no doubt cost more in the first place, and yet I think this question of cost will be found more apparent than real. It costs more to buy them in the first instance, but when you come to place in the scale against this the facts that no expense in labour has at any time to be expended in washing the pots whilst the plants are in them, and also the damage to valuable plants so frequently resulting from their being shaken about in the process of pot washing, and the longer life of this pot by reason of its being harder baked, and, therefore, less brittle, I am not sure that the scales will not turn in favour of this pot even in the matter of cost. *Owen Thomas.*

INJURY BY RATS AND PHEASANTS.—I have read with interest the several articles which have recently appeared in these columns on this subject, and it may interest other readers to have my experience. With regard to the injury done by rats, I have suffered in the same way as has Mr. Mountford, but, after destroying the whole plantation of Brussels Sprouts, they also destroyed a large plantation of Broccoli, with the exception of one variety, White Sprouting, and then turned their attention to the Drumhead Cabbages, felling many of them. I think my experience with regard to injury by pheasants is unique: they completely "docked" a large plantation of leeks here this winter, leaving only the stems, which, however, were fully developed before being attacked, and are still fit for use, and last spring they scratched up row after row of French Beans in as thorough a manner as rats do Peas, and ate only the radicle of each Bean. Although I have counted as many as 30 pheasants amongst and around the Gunners, they have in no way injured them. *W. M. Macdonald, The Gardens, Killymore Castle, Co. Galway.*

VIOLETS IN POTS.—The illustration on p. 27 of the *Gardeners' Chronicle* of Violets flowering in pots is both seasonable and timely, and displays unmistakably the value of the plant when thus grown. Some appear to experience difficulty with the Violet as a pot plant, while growing the plant with success in the open garden and in frames. In my own immediate district, where fog and damp are very general, no mode of treatment is so reliable as the permanent pot-method for insuring flowers during the dullest season of the year. A very old gardener of my acquaintance grew the double-flowered varieties with considerable success for years in 3-inch pots. Personally I prefer to use 8-inch pots. Mr. Stokes has shown, however, that good results can be secured in pots of a lesser size. *E. J.*

LILY OF THE VALLEY.—In your issue of January 5 an article appears entitled *Lily of the Valley* for small growers, which, although instructive in the main, is, nevertheless, very misleading. One point claimed is that one of the Hamburg exporting firms will sell as small a quantity as 1,000; one firm we know of in England will supply as few as 25 crowns. Again may we quote the following: "As a general rule it is better to avoid samples retarded in England. These are usually frozen in public cold stores with provisions and other goods, and this kind of cold air is unsuited to retarding *Lily of the Valley*, and according to the writer's experience (which covers handling about two and a half million each of both fresh and retarded crowns). 9 out of 10 batches grown from English retarded crowns are a dismal failure. In Hamburg they are retarded in specially-constructed houses, and one or two firms have made a special study of the work, have their own cold stores, and have brought the business almost to perfection." Now the firm we have in mind have also their own cold stores built entirely for this work, and I am sure they possess the necessary experience, as they have been retarding *Lily of the Valley* for the last 18 years; in fact, were the pioneers in this country, and now handle annually 10,000,000 crowns. In conclusion, we should like to point out that the majority of the *Lily of the Valley* crowns retarded in Hamburg are the cheap rubbish which the dealers find a difficulty in disposing of in the autumn, whilst over here in England it is generally the very best quality only that is put away in the refrigerator, and it stands to reason that the better the quality the more able the crown is to stand the long period of retardation. *R. and G. Guthbert, Southgate, Middlesex.*

ABIES RELIGIOSA (LINDLEY).—It makes a handsome tree and grows fairly here, being quite uninjured by frost, although it is spoken of as not hardy in this country (*Nicholson's Dictionary*). Gordon says, "Schiede found it growing upon the cold mountains of Orizaba, at the highest limit of arborescent vegetation," and also "Hartweg found it at an elevation of 9,000 feet." One would imagine that it is quite hardy, but perhaps it is not easy to establish, and this may account for its being so rarely seen. I wonder why *Abies religiosa*, or any of its synonyms, does not appear in *Kew Handlist* of Coniferae. Has this name also been suppressed for a new one? [No.] Speaking of names, the list just referred to holds the specific name insignis and not radiata for the Monterey Pine. The *Kew Handlists* are admirable in their usefulness and cheapness, and many gardeners accept the nomenclature as authoritative, but often finding other authorities upholding different names. *H. W. Trevinca.* [The absence of *A. religiosa* from the *Kew Handlist* may be owing to the circumstance that it was not grown in the gardens at the time the list was compiled. There has been much uncertainty about *Pinus insignis*, but we believe that it is now generally considered as specifically identical with the earlier named *radiata*, though there is considerable difference between individual specimens. —ED.]

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

JANUARY 8.—Present: Mr. G. S. Saunders, F.L.S. (in the chair); Messrs. J. T. Bennett-Poe, E. A. Bowles, E. M. Holmes, and F. J. Chittenden (hon. sec.).

Pleurothallis sp.—Mr. R. A. ROLFE reported that the *Pleurothallis* shown at the meeting on November 20 by R. I. MEASURES, Esq., could

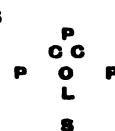
not be identified at Kew, but may be one of several described by Reichenbach still only known from description. It is near *P. velat-caulis*, Reich f.

Grapes shanking.—Some shoots of vines, the fruit of which had shanked, were received from Basingstoke. From the description of the border, that accompanied the specimens it was thought that the trouble was undoubtedly due to unhealthy root action, and that renovation of the border would probably result in improvement in the growth of the fruit.

Magnolias and mealy bug.—Some shoots of *Magnolia* affected with mealy bug were received from Horsham. The shoots were from plants growing on the south side of a wall 200ft. long and 15ft. high, and, although various insecticides had been tried upon the plants, no good results had followed. The scale insects were, curiously enough, not found in the houses built on the south side of the wall. Mr. SAUNDERS reported as follows:—"The mealy bug attacking the *Magnolias* is *Dactylopius longispinus*. Of course, it is very difficult, if not impossible, to properly cleanse the leaves with an insecticide, as the plants are growing against a wall. It might, however, be possible to destroy them with hydrocyanic acid gas if some comparatively airtight covering could be constructed over the plants, e.g., a tarpaulin or a rick cloth might be fastened with a batten against the wall above the plants and allowed to fall down in front of them to the ground. The sides might be fastened to the wall in the same manner as the top. The gas is generated by pouring sulphuric acid over cyanide of potassium. The method of procedure is as follows: Place 4 ounces of water in an earthenware jar, pour slowly into it 1½ fluid ounces of sulphuric acid (specific gravity 1.84), then in a shallow earthenware dish put 1 ounce of potassium cyanide (98 per cent. strength), and arrange the jar of acid so that its contents can be slowly poured over the cyanide, without any chance of the fumes reaching the operator, as they are most poisonous. Or the cyanide may be wrapped up in a piece of blotting paper and placed on a piece of board laid on the top of the jar, but not closing the mouth, and by means of a stick or string it may be dropped into the jar containing the acid, and then every aperture tightly closed. The above recipe gives the quantities for use in a space containing 150 cubic feet of air; if the space be larger the quantities must be increased in proportion. The plants should remain exposed to the fumes for above three hours. Means must be devised to remove the covering, or at least to open it, so that all fumes escape without any person breathing them, as they are very deadly. It is curious that the insects do not infest the plants in the houses on the other side of the wall. Mealy bugs do not breed in the ground, but usually on the plants; they may, however, do so at times in cracks, &c., in the walls. They lay their eggs in masses covered with a cotton-like secretion, in convenient positions on the plant.

Plants for naming.—Shoots of *Edwardia tetraptera*, *Clianthus puniceus*, and another, of which the material was insufficient, were received from Stockton.

Malformed Cypripedium.—Dr. MASTERS reported that he had examined the curious *Cypripedium* shown at the last meeting by Mr. BENNETT-POE, and found that there were three sepals, two lateral and one anterior, and three petals, one posterior and two lateral. The lip was normal; the column had two staminodes, the stigma was obliquely two lobed, and the axis of the flower was diagonal, the ovary being normal with one cell, and three parietal two-lobed placentæ. The following diagram represents the arrangement of the floral organs:—



Monacious Mistletoe.—Dr. MASTERS showed a specimen of this rarely occurring form on behalf of Mr. CORDEROY, of Didcot, and a variety of the common Mistletoe having thick, leathery leaves about four times larger than usual.

Christmas Roses diseased.—Mrs. SQUAREY, F.R.H.S., sent leaves of the Christmas Rose

which had turned brown and died; the flowers appeared, but rose little above the surface of the soil. Mr. BENNETT-POE said that he had found a similar thing to occur when the roots are attacked, as is frequently the case, by the grubs of the crane fly. Gooseberry shoots, diseased Cucumbers, and Amaryllis bulbs were also received, and will be reported upon at the next meeting.

THE ASSOCIATION OF ECONOMIC BIOLOGISTS.

JANUARY 9, 10, 11.—The annual and fourth general meeting was held in the Pathological Department of the University of Cambridge on the above dates.

The retiring president, Mr. T. V. Theobald, occupied the chair.

The following were elected as officers for 1907:—President: A. E. Shipley, F.R.S. Vice-presidents: Sir Patrick Manson, F.R.S., Professor William Somerville, and Fred. V. Theobald. Council: Professor G. S. Boulger, W. G. Freeman, Professor Geo. H. Carpenter, Dr. Francis, H. A. Marshall, Robert Newstead, Professor Ronald Ross, F.R.S., Fraser Story, and Cecil Warburton. Hon. treasurer: Herbert Stone. Hon. secretary: Walter E. Collinge.

Mr. A. E. Shipley, F.R.S., the newly-elected president of the association, delivered his presidential address on "Sea Fisheries." Dwelling on the magnitude of the fishing industry in these islands and the arbitrary fluctuations to which sea fisheries are exposed, he sketched the history of legislation on sea fishing during the last 75 years, and pointed out that even now our knowledge of the life histories, the migration, the enemies, and the food of fishes was hardly precise enough to enable us safely to legislate.

Professor Nuttall, F.R.S., made a communication on "Redwater Fever and Allied Diseases."

Mr. Biffen illustrated, by means of a series of lantern slides, the inheritance of the characters lax and dense ears in Wheat, and also beardless and bearded ears, first separately, and then in combination with one another. Following this, inheritance of the characteristics of Wheat and Barley were traced. Included amongst those were such characteristics as "strength" or good baking quality and the power of resisting the attacks of yellow rust in Wheat. The results of his experiments indicate that it is practicable to combine in one variety the excellent quality of certain Canadian Wheats, the vigour of English varieties and immunity to the attacks of rust.

Mr. E. S. Salmon gave an account of the American Gooseberry-mildew, which gave rise to a lengthy discussion, in which Prof. Middleton, Mr. Percival, Prof. Fisher, Prof. Carpenter, and Mr. Walter E. Collinge took part.

Mr. Walter E. Collinge made a contribution to the subject of the extermination of the Black Currant gall mite. He advised no one to be led away by the statements which have appeared in certain horticultural and agricultural journals to the effect that there was no likelihood of a cure for the pest, or even the means whereby the mite could be kept in check. The experiments which he had conducted over seven years had yielded results, checked by many large fruit-growers, which clearly pointed to the fact that applications of lime and sulphur offered an effective remedy, and that if they were continued they would eventually entirely eradicate the pest.

Dr. R. S. MacDougall gave an account of his experiments in regard to the parthenogenesis of the Pine sawfly, an insect which does a great deal of damage to Pine plantations, and Mr. E. V. Theobald read a paper on new hemipterous fruit pests in Britain.

Mr. W. G. Freeman read an important paper on the geographical distribution of the principal Rubber Plants.

The distribution of the principal members was described in detail, and the more important factors limiting the range of the species discussed. Attention was directed to recent work, such as the discovery of *Funtumia elastica* in East Africa and of the important new Rubber Plant, *Landolphia Dawei*.

During the past 30 years much experimental work has been carried out in introducing Hevea, Castilleja, Ficus, *Funtumia*, and *Manihot* into other countries. A summary was given of the

chief results obtained, with especial reference to the establishment of the important rubber industries of the Far East, and the prospects of rubber cultivation in the West Indies, tropical Africa, &c. The question of "wild" versus "plantation" rubber was discussed, and an attempt made to indicate the general trend of events.

Mr. E. R. Burdon contributed a paper on the Spruce gall and Larch-blight diseases caused by Chermes. After sketching the life-history, an account was given of the remedial measures that had been found to be effective.

Mr. F. V. Theobald gave an account of certain insect pests in the British East African Protectorate.

An extraordinary disease affecting horses was described by Mr. T. S. P. Strangeways.

The blood changes in man caused by the Metazoan parasites and their aid in diagnosis was the subject of a paper by Mr. E. G. Fearnside.

Mr. W. G. Freeman described the use of an economic museum in the teaching of geography. Collections of botanical products of economic value might be classified in one of three ways, according to (1) botanical origin, (2) geographical origin (3), use, i.e., under food stuffs, fibres, timbers, gums, resins, &c. Specimens, photographs and other illustrations were exhibited to demonstrate that a collection could afford a comprehensive idea of the botanical products and resources of particular countries, with especial reference to Southern Nigeria, Barbadoes, and Dominica, and how such collections might be brought within reach at low cost of schools who had not ready access to economic museums.

DEBATING SOCIETIES.

GROVYDON & DISTRICT HORTICULTURAL.—The annual general meeting of this association was held on Wednesday, January 9. The annual report showed that this society is making good progress. Twenty-one meetings have been held during the past year. The annual dinner, on Wednesday, January 24, was again a success. Nearly 100 members and friends attended, and spent a pleasant evening. The spring flower show was held a little later in the season than in previous years, which proved a decided advantage, for it allowed a bigger display of early flowers. A visit to Leonardslee, Herts., by kind permission of Sir Edmund Loder, Bart., was made on August 15, and evening visits were also made to several gardens. The balance sheet shows a total income of £76 1s. 1½d. (which sum includes the value of certain stock held by the society), and a small balance in favour of the society.

CARDIFF GARDENERS'.—The opening meeting of the new session of this society took place on Tuesday, January 8, at the Philharmonic Restaurant, when Mr. H. A. Evans, of the Hardy Plant Nurseries, Llanishen, read a paper on "The Herbaceous Border and How to maintain it." The lecturer gave directions for the preparing of the soil before planting and advocated manuring and deep trenching in this operation; he recommended planting in bold groups instead of in straight lines. The lecturer also gave a comprehensive list of herbaceous plants, their season of flowering, propagation, and general cultivation. A good discussion followed, and many questions were put to, and answered by, Mr. Evans.

QUILDON & DISTRICT GARDENERS'.—The second annual general meeting of this association was held on Tuesday, January 8, the retiring president (Alderman F. F. Smallpeice, J.P.), presiding. The hon. secretary read the committee's report for the year, which showed that a steady advance had been made. The meetings had been well attended, the average attendance at the 21 meetings having been over 50. Exhibits at the monthly assemblies had been numerous and of exceptional merit. The summer show had been a great success in every respect. On four occasions during the year outings had been enjoyed. The number of members was 122. The hon. treasurer (Mr. W. Foreman) reported that the receipts during the year had totalled £87 6s. 8½d., and the expenditure £20 7s. 0½d., leaving a balance in hand of £16 19s. 7½d. Both the report and the balance sheet were adopted. Mr. F. Baring-Gould was unanimously elected president, and other officers were elected as follows:—Mr. H. Tann, chairman; Mr. G. Johnson, vice-chairman; Mr. Hancock, librarian; Mr. W. Foreman, hon. treasurer, and Mr. G. Bullen, hon. secretary. The committee were also elected. A very pleasant social evening in connection with the association was held at the Workman's Hall on Wednesday, January 9, when over 100 members and friends were present. G. E. B.

CRAWLEY & DISTRICT GARDENERS'.—The members of this association met on Tuesday, January 8, Mr. G. F. Banks presiding. Three new members were elected, and the association accepted the offer of Mr. H. Hobson Finch for the annual exhibition in July to be held at Goff's Hill. The subject for the evening was "Vegetables for Exhibition," the lecturer being Mr. A. B. Waddes, gardener to Sir Weetman Pearson, Bart., of Padstockhurst, Wroth. A discussion followed the reading of the paper.

BECKENHAM HORTICULTURAL.—On Friday, January 4, Mr. J. A. Watson, B.Sc., of Beckenham, gave a record lecture on "Leaves," illustrated with limelight views. A number of the pictures placed on the screen were made from sections cut and mounted by members of the Society under the kind tuition of Mr. Watson. At the ordinary

meeting, held on the 11th inst., an instructive hour was spent in examining and discussing a fine case of moths and butterflies brought by Mr. Libbiter, gardener to Dr. Codd, Bromley, and who explained the life history of many of them by verbal and ocular demonstration. The whole of the moths, &c., displayed were collected and bred by Mr. Libbiter, a work extending over seven years. T. C.

CHESTER PAXTON.—The opening lecture of the present session was given on Saturday, January 12, by Mr. G. P. Miln, whose subject was "A holiday in Ireland." The lecturer's remarks were principally concerned with the districts included in the northern circular tour from Dublin, the topography of which he described in a very lucid manner. Of special interest were the photographic slides of the famous Pinetum at the seat of Viscount Powerscourt, in County Wicklow, and other views representing the beautiful surroundings of this large estate. Special reference was also made to the Botanic Gardens at Glasnevin, the extensive gardens and plantations of Phoenix Park, &c. The pictures, some 70 in number, included representations of some old Irish Celtic crosses, and Norman doorways, as well as the Giant's Causeway in County Antrim.

READING AND DISTRICT GARDENERS'.—The annual general meeting of this association was held in the Abbey Hall on the 7th inst., and the president (Mr. Leonard Sutton) presided over a large attendance of the members. The annual report and balance sheet showed that the society was in a most flourishing condition. Never before has the membership (513) been so large, the financial aspect so good, or so keen an interest shown in the meetings. The attendance ranged from 80 to 175. A display of over 400 bunches of cut flowers was made on "Hospital Night." At the same meeting a collection was made in aid of the funds of the Royal Berkshire Hospital, and a sum of £3 10s. was realised. The summer outings were a success. After the reading of the report the officers and committee for 1907 were elected.

SCHEDULE RECEIVED.

ABBEY PARK FLOWER SHOW, Leicester, to be held on Tuesday and Wednesday, August 6 and 7, 1907.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending January 12, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was generally dry and occasionally very bright over all the eastern and north-eastern parts of Great Britain, but in the western and north-western portions of the Kingdom the sky was more generally overcast, and precipitation was experienced on several days. The amounts were generally slight, but at Glencarron on the 11th the measurement was 1.96in. Distant thunder was heard at Hillington on the afternoon of Saturday.

The temperature was above the average in all districts; the excess was less than 2.5° in England S.W. and the English Channel, but more than 4° in most other localities, and as much as 5.9° in Scotland E. The highest of the maxima were recorded on rather irregular dates. In Scotland E. and Ireland S. the thermometer rose to 55°, and all other districts to 50° or a few degrees higher. The lowest of the minima, which were mostly registered either during the earlier days or late in the week, ranged from 39° in England N.W. and Ireland S. to 34° in Scotland N., and to 36° in the English Channel.

The mean temperature of the sea was higher than during the preceding week except off the south-west and south-east of England. On all the western coasts it was generally above 46°, and at Plymouth, Salcombe, and Port Erin it stood at about 48°. On the east and north-east coasts of Great Britain it was not generally above 40°, but at Lerwick it was as high as 44°, while at Wick it touched 65°.

The rainfall was less than the normal except in Scotland N. Over a considerable portion of England the aggregate fall was less than a tenth of an inch.

The bright sunshine exceeded the normal over all the eastern, north-eastern and central counties of England and the east of Scotland, and equalled it in England S. and N.W.; elsewhere, the duration was less than the average. The percentage of the possible amount ranged from 29° in England N.E. and E., 24 in the English Channel, and 23 in Scotland E., to 8 and 7 respectively in Scotland N. and W., and to 5 in Ireland N.

THE WEATHER IN WEST HERTS.

Week ending January 10.

Day temperatures remarkably uniform.—The uniformity of the temperatures in the thermometer screen during the last 12 days has been very remarkable, the lowest being 45° and the highest 49°, or a variation of only 4°. Night temperatures during the same period were all high, and on the warmest night the exposed thermometer did not fall below 41°. Since the beginning of the month the ground has been gradually getting warmer, and is now 9° warmer at 2 feet deep, and 4° warmer at 1 foot deep than is reasonable. Rain has fallen on only one day during the past fortnight, and then only to the depth of less than a quarter of an inch, so that the percolation through the soil gauges is now very slight. The sun shone on an average during the week for 1 hour 48 minutes a day, or for 17 minutes a day longer than the January average. Nevertheless, during the present month there have been no fewer than eight days on which no sunshine at all was recorded. Yesterday was calm, but during the rest of the week the winds were, as a rule, rather high. Up to the present time this month the winds have come exclusively from some westerly point of the compass. The mean amount of moisture in the air at 8 p.m. was 4 per cent. less than a reasonable quantity for that hour. E. M., Berkhamsted, January 16, 1907.

NATIONAL POTATO SOCIETY.—We are informed by the secretary that the adjourned annual meeting of the National Potato Society will be held at the Hotel Windsor, Victoria Street, London, on Tuesday, January 22, at 3 p.m.

THE POTATO YEAR-BOOK.—On the receipt of one shilling, plus postage, Mr. W. H. ADSETT, of Hatton House, Great Queen Street, London, will supply a copy of the "official publication of the National Potato Society." We may at once say that the outlay is likely to be remunerative to various classes of potato lovers. The subject matter is varied to suit the requirements of those who want to know, those who want to grow, and those whose interests are wholly commercial. The latter class, indeed, know how to take care of themselves, so that the National Potato Society need hardly go out of its way to further their interests at the expense of the other members of the community. Its main business, we take it, should be to collect and arrange information of all kinds, to sift it, facilitate its application to useful purposes, and to diffuse it broadcast among the growers, large or small. Botany, chemistry, geography, morphology, physiology, and all the "ologies" may and should be drawn upon for the benefit of the Potato-grower. The occurrence of "mutation," a subject much discussed at the present time, is one upon which Potato-growers could throw much light, and in consideration of the results alleged to have been obtained by M. LABERGE and others, this can hardly be said to be a matter of academic interest only. This subject is not touched on in the present report. We have, however, the records of independent trials in various counties which cannot fail to be of value.

Obituary.

JOSEPH WILLIAM OLIVER.—Many gardeners and students of botany will learn with deep regret of the death on the 9th inst. of Mr. Joseph William Oliver, who for over 30 years was a teacher of botany and geology in the city of Birmingham. Mr. Oliver's illness, which terminated fatally at the residence of his daughter at Harborne, followed on an accident which befel him on New Year's Day, when he slipped in Birmingham and broke his thigh. The deceased gentleman, who was 74 years of age, published in 1890 through Messrs. Blackie, his well-known *Elementary Botany*, which has had an enormous sale, and has passed through a number of editions and reprints. In 1894 he published through the same firm his larger work on *Systematic Botany*, which has also been very successful. As a teacher Mr. Oliver was very devoted, and greatly endeared himself to his students by his painstaking methods.

ENQUIRIES AND REPLIES.

CELERIAC AND MANGEL WURZEL.—Can any reader inform me when these plants were first introduced. *Enquirer.*

ANSWERS TO CORRESPONDENTS.

ACACIA ARMATA: H. We could not be certain if the plant referred to in our market reports would be the same as that seen at Kew. Market-growers use many names which would not be adopted at Kew, but that referred to would be the same as given in most nursery catalogues.

ACETYLENE GAS REFUSE: W. D. See reply to A. C. W., in the issue for December 15, page 416. For practical purposes this refuse may be used as lime would be.

BOOKKEEPING: S. A. Pitman's *Bookkeeping Simplified* will be suitable for your purpose. You can obtain it from our publishing department, price 2s. 9d. free by post.

BOOKS: Self-help. You will find some of the information you require in *The Horticultural*

Note-Book, by J. C. Newsham, price 7s. 10d. (post free) from our publishing department; also in *The Horticultural Directory* for 1907, price 1s. 3d. (post free). We cannot undertake to recommend any particular firm of seedsmen.

CHRYSANTHEMUM: G. T. C. The white variety seen in the florists' shops so plentifully at Christmas may have been Princess Victoria. Other good white market kinds in season at Christmas are Snowdrift, Western King, Duchess of Northumberland, and Guy Hamilton.

CUT FLOWERS: T. J. The Scilly Island growers send large quantities of cut bloom to Covent Garden flower market, and they are sent at specially low rates. We think you would do better to arrange with one of the commission agents in the market than to try to get small quantities direct from the Isles. You would also be able to buy any English flowers through the commission agents in the market. Very few of the large growers care to divide their produce up into a number of consignments. You will find several good firms in our advertising columns. It might be worth your while to visit Covent Garden market and make arrangements, or you would possibly be able to do better at a market centre nearer home.

DOUBLE-SPATHED RICHARDIA: W. Wood. Many thanks for the flower. We receive a considerable number exhibiting this condition.

GRAPE MELTON CONSTABLE: E. M. M. This variety was raised by Mr. W. Shingler, gardener to Lord Hastings, Melton Constable, East Dereham, Norfolk. You will find letters from growers of this Grape in our issues for January 2, 1904, p. 12; January 16, 1904, p. 45; and October 15, 1904, p. 275.

HELLEBORUS (CHRISTMAS ROSE): S. D. D. The leaves may be suffering from an attack of a fungus disease, or from the roots being attacked with the grubs of the crane fly, as mentioned in the paragraph on page 46. Kindly send some leaves for examination.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.*

FRUITS: J. M. 1, Adam's Pearmain; 2, Blenheim Pippin; 3, Cheshunt Pippin; 5, Withington Fillbasket; 6, Deux Ans.—*L. F. W.* 1, Downton Pippin; 2, Crimson Quoining; 3, Court of Wick.—*Ruth.* 1, Lucombe's Pine Apple Russet; 2, Beauty of Hants. (known in Kent as Bastard Blenheim).—*Thos. Denny.* Marie Benoist.

PLANTS: H. J. W. The two frail specimens are much withered, and the numbers detached. The large green flower with a white lip is *Angræcum eburneum virens*. The yellow flower spotted with purple at the back is *Maxillaria picta*. The spray of white flowers with yellow tips to the segments is *Masdevallia melanopus*. The other specimen is not found, only the ticket and a flowerless scrap of an inflorescence.—*I. P. C.* 1, *Cypripedium Leeatum*, 2, *Cypripedium insigne*.—*Constant Reader.* The labellum of the *Calanthe* is too broad for a sport from *C. Veitchii*. It is probably the hybrid *C. Sedeni*, one of the first crosses from *Veitchii*.—*W. T.* The smaller flower is *Odontoglossum Andersonianum*; the larger one *Odontoglossum lochristense*.—*V. A. R.* 1, *Miltonia spectabilis*; 2, *Oncidium candidum*; 3, *Pleurothallis rubens*; 4, *Sellaginella Kraussiana*.—*J. S.* *Codiaeum Johannis*.—*A. A.* 1, *Acacia pubescens*; 2, *A. dealbata*; 3, *Haworthia margaritifera*.

NARCISSUS POETICUS ORNATUS: A. R. B. The bulbs you submit are of good flowering size and quite healthy, and should have produced flowers

under ordinary conditions of culture. Under the unnatural conditions of forcing, however, this variety requires careful and studious treatment, and you appear to have made the common error of tempting the bulbs to start too early. Such attempts have a retarding influence upon the bulbs, the latter, especially when poorly rooted, making but little headway for a long time. It would have been better to have kept the bulbs in a cold house until the end of the year, supplying ample moisture meanwhile. We are of opinion that the supply of moisture to the roots has been insufficient. Curiously enough the larger bulbs—the Dutch sample—are the more forward, the others being now in the critical stage. The Dutch bulbs, therefore, if well rooted, are in a better condition to stand an increase of heat, and so soon as the bud is clear of the bulb a considerable increase may be made. Usually the Guernsey produce would be a little earlier, but so much depends upon a long season of preparation outside, followed by a long season of cold treatment under glass. You do not say whether the two stocks were planted at the same time!

ONCIDIUM TIGRINUM: E. C. W. *O. tigrinum* and its variety *O. t. unguiculatum* require similar treatment. The cool house, or cool intermediate house, suits them well, as their treatment should be in most respects similar to that of *Odontoglossums*. But after the new growths have fully made up their pseudo-bulbs, a long and dry rest should be given until the flower-spikes appear. From your statement that the plants make good pseudo-bulbs, and yet fail to flower, we think it most probable that the continuance of water throughout the whole year accounts for the failure to flower. These cool-house *Oncidiums* also like a somewhat drier atmosphere during the time they are resting than is found usually in the *Odontoglossum*-house. It is a good plan to remove them to a cool vinery or other fruit-house to rest before flowering.

REMOVAL OF FURNITURE: Scot. Yours seems to be a hard case, but we do not think you could compel your employer to defray the cost. Join the British Gardeners' Association, and bring the case under the notice of that society.

ROMAN HYACINTHS: F. D. & Co. Two very different samples are represented by the bulbs you send, neither of which has blossomed, primarily because no flower-embryo was made in the summer of last year. It is not at all clear why the larger bulb contained no flower-bud, seeing it is quite healthy and of a size capable of yielding two good spikes at least. The other bulb is decidedly of an inferior type, such as could only be regarded as of third size and diseased withal. Judged by the appearance of the root fibres there would appear to have been a cultural error, the indications showing that the bulb has been lifted up after rooting had well commenced and been pressed down again into its original place. This would cause injury to the roots, and at about 1½ inches from the base of the bulb such injury is obvious. At that point the roots bear evidences of breakage and decay. This, however, would not account for the non-flowering of the bulbs, and although a bulb at planting time is so diseased as to be incapable of producing a single root-fibre at its base, it would, provided it contained the germ of flower spike, exert all its stored up energies to develop it.

SIDE WALLS OF GREENHOUSES: H. Many of the market growers make these walls of concrete, consisting of ashes from the furnaces and a bag of cement to two, three or four barrow-loads of ashes; or, to be more exact, one bushel of cement to five of ashes. The walls vary in thickness, but usually 3 by 2 in. quartering is used, making the walls three inches thick, and long nails are driven into the quartering, leaving them standing out far enough to hold the concrete. Sometimes cement is used instead of lime as a wash to preserve wood, and it is effectual in preventing fungus spreading, if the work is properly done.

COMMUNICATIONS RECEIVED.—W. N. White & Co., New York—Prof. Dr. Engler, Berlin—D. R. W.—W. P.—E. M.—H. M. V.—C. Amat, Paris—J. R. J.—G. H. D.—T. W. P.—E. M.—W. A. C.—E. S. S.—W. H. W.—R. B. C.—Vuytske, Ghent—C. T. D.—E. A. B.—T. Z.—G. W. L.—C. A., Paris—Baldersby Park—C. H. B.—F. P.—W. P. K.—D. M. W.—H. W. W.—Royal Meteorological Society—H. Rothery—J. G. P.—Mrs. A. W.—E. H. J.—O. B.—G. B.—H. J. C. (many thanks)—H. R.—S. C.—W. D.—R. P. B.—S. A.—W. P. B.—A. D. W.—H. S.—T. M. Wells.

For Market Reports see page xvi.



THE Gardeners' Chronicle

No. 1,048.—SATURDAY, January 26, 1907.

CONTENTS.

Apples, seedless ...	59	Obituary—	
Apricot trees and caterpillars ...	60	Jerrold, T. S.	64
Begonia Gloire de Lorraine ...	60	Winter, Dr.	64
Books, notices of—		Odontoglossum Beauté Celeste x ...	59
Agricultural Science Journal ...	56	Plant novelties in 1906 ...	51
Icones Plantarum ...	58	Plants, new or noteworthy—	
Journal of Forestry ...	57	Ancistrochilus Rothschildianus ...	51
Kew Guild Journal ...	56	Rainfall in 1906 ...	57
My Garden Diary ...	56	Recent Progress in the Study of Variation ...	
Progressus Rei Botanicae ...	57	Hereditary and Evolution ...	58
Publications received ...	58	Rhododendron barbatum ...	60
Bramble hybrids ...	60	Roses in pots ...	60
Chrysanthemums for Exhibition ...	59	Rothamsted Agricultural Station ...	58
Claydon Park, Bucks. ...	50	Seasonal Botany ...	58
Colchicum autumnale and other species ...	56	Societies—	
Crops and the weather ...	57	Manchester and N. of England Orchid ...	59
Cultural memoranda—		National Potato ...	58
Poinsettias ...	51	Royal Horticultural Society Française d'Hort. de Londres ...	61
English gardeners in France ...	58	Tar as an insecticide ...	60
Ferns of Western China ...	57	Weather at Rothamsted in 1906 ...	52
Flowers, change of sex in ...	57	Week's work, the—	
Forestry—		Flower garden, the ...	55
Douglas Fir as a timber tree ...	58	Fruits under glass ...	54
Fruit-trees, winter spraying of ...	57	Hardy fruit garden ...	56
Garden changes ...	58	Kitchen garden, the ...	55
Gooseberry-mildew, the American ...	60	Orchid houses, the ...	55
Greenwich Park ...	59	Parks and gardens ...	54
Mangel Wurzel ...	60	Plants under glass ...	54
		Wisley, scientific director at ...	56

ILLUSTRATIONS.

Ancistrochilus Rothschildianus 57; A. Thompsonianus	51
Choisya ternata, flowering for the third time in one year	58
Colchicums in the Royal Gardens, Kew (Supplementary illustration)	
Odontoglossum "Beauté Celeste" x	59
View in the Greenwich Public Park	58

CLAYDON PARK.

THE three villages of Claydon almost exclusively form the Buckinghamshire estate of the Verney family, the present owner of the title and its appanages being Sir Edmund Hope Verney, Bart. The estate is remote from a town of any considerable size, and forms an ideal seat of an English country gentleman. The family has been connected with the neighbourhood for some centuries, and many members, through the ages, have been eminent as warriors and sea captains, statesmen and churchmen. The estate is, therefore, interesting for its historic associations, as well as for the beauty of the mansion, the park and the gardens, and for a successful attempt to solve one of the most pressing economic questions of the day, viz., the keeping of the young English husbandman on the soil. The Claydon estate consists of some 8,000 acres, while the park, exclusive of the lake, is 400 acres in extent. The road through the park leading to the mansion is bordered by a fine avenue of old Elms, between each of which has been planted a Lime tree, so that in a few years' time, as the Elms decay and are removed, an avenue of Lime trees will take their place. The Lime flourishes exceptionally well here, and many grand specimens are to be seen.

One does not need to be on the estate long to be impressed by the fact that there is no waste land—often the case on large estates. Every yard of ground is made to produce something of value. As an instance, a large piece of waste land, formerly regarded as utterly useless, was suitably prepared and planted with King of the Pippin Apples. These trees are doing splendidly, giving an enhanced value to the estate, as well as an almost sure annual revenue in a large crop of Apples. Even in the stable-yard, space not needed for ordinary stable work is utilised for fruit trees. I must mention in passing that this said stable-yard contains a perfect specimen of the beautiful Catalpa bignonioides, which obtained a prize given some years ago by a contemporary gardening paper. The dimensions of this Catalpa are as follow:—Height, 35 feet; diameter, 3 feet from the ground, 8 feet; branch-spread, 51 feet.

The bush fruits at Claydon presented, at the time of my visit, as grand a display of fruits as I have ever witnessed. The individual bushes were sturdy and symmetrical, and trained to produce the largest possible quantity of fruit. Gooseberries were principally of the varieties Keepsake, Whinham's Industry, May Duke, and Whitesmith; while of Red Currants Fay's Prolific is the heaviest cropper. Of Black Currants, Carter's Champion and Victoria were bearing berries of very large size. The Black Currant bushes were absolutely free from the mite that is causing such devastation in many places. In these gardens are to be seen the effects of intensive cultivation intelligently carried out. The ground is made to produce two or three crops annually, and a selection is made of those subjects that either do not require the same chemical constituents or whose times of harvest do not coincide. For instance, Strawberries and Lettuces, Early Beet (to come into early use as a salad) and Carrots, Early Potatoes and Brussels Sprouts, Narcissi and Raspberry, &c., occupy the same ground. Such a cultivation is carried on with great expenditure of plant-food, which is, however, supplied principally by dry night-soil, augmented by an intelligent use of chemical manures. At the time of my visit (July), Strawberries were carrying good crops, the principal varieties being The Laxton, Laxton's Fillbasket, Trafalgar, &c. Of Apples, the varieties having the heaviest crops were Cox's Orange Pippin, Peasgood's Nonsuch, Lane's Prince Albert, King of the Pippins, and Newtown Wonder. Among Pears the varieties Williams' Bon Chrétien, Pit-maston Duchess, and Marie Louise were bearing average crops. Figs also do well in the open, frequently bearing two crops a year. In a large range of glasshouses a magnificent crop of Tomatoes was growing. About five tons of these fruits are produced every year, each plant giving some 16 to 20 pounds of fruit. The variety principally grown is a cross known as "The Cropper," raised by Mr. Milson, the gardener.

It is no secret that the surplus produce of the majority of large gardens is disposed of for profit. This method obtains on this estate, which is run on entirely business lines. The proprietor, manager, foremen, and journeymen form a co-partnership, and after 5 per cent. is paid as interest on capital, the remainder of the returns is divided *pro rata* among all the employees annually, according to their rate of wages. The books containing the particulars of each crop are admirably kept, and one could readily ascertain the amount of profits. I was assured that the men worked thoroughly well, needed very little superintendence, and were very keen on the

profitable results of their labour. The gardens are maintained in a state of high efficiency, only the varieties that produce the best in quality and the greatest in fruitfulness are grown, and no appliance that money can purchase to facilitate work and economise labour is thought too costly to obtain. Among the many up-to-date implements, I was greatly impressed by a weighing machine, which is so well adjusted as to weigh accurately from one ounce to two hundredweights. I was also shown a pruner, which could be extended to varying lengths, and which by means of a simple fulcrum gave power of half a ton. The entire management of the gardens is an admirable example of what enlightened landlordism allied with intelligent co-operation can effect.

Roses succeed well at Claydon, and at the time of my visit in July the following, among many others, were blooming profusely: Charles Lefebvre, Mildred Grant, Marie Van Houtte, Sulphurea, Hon. Edith Giffard, Souvenir d'Elise Vardon, Catherine Mermet, Ivory, Anna Ollivier, Frau Karl Druschki, Souvenir de Thérèse Levet, Princesse de Sagan, and Madame Lambard.

Proceeding through a pergola, over which roamed Clematis vitalba and C. montana, Rambler Roses, Virginia Creeper, and Golden Hop, one came to a fine piece of greensward, which in early spring is gay with Snowdrops, Daffodils, and Hyacinths. Here is planted a choice collection of Rhododendrons, Azaleas, and Scotch Roses, also trees and flowering shrubs, including handsome Yews, and good specimens of Spiraea ariæfolia, Rhus Cotinus, Syringas, Sequoia sempervirens, Ailanthus glandulosa, &c.

The flower beds were furnished with the usual subjects, but an interesting collection of Cactus-flowered Pelargoniums merited attention, while a large bed of Sutton's fine strain of Pentstemons made a magnificent display.

The mansion is a fine, old, red-brick structure, the oldest portions dating from Tudor times. The walls are in part clothed with suitable climbing subjects—Ivies, Roses, Magnolia conspicua and M. grandiflora, &c.; about 50 square feet on one of the towers is covered by Ampelopsis Veitchii, forming a pleasing feature. The view from the west front of the residence is a typical example of the reposeful beauty of English scenery. From the lawn, flanked by cannon brought home by the present baronet from India and the Crimea, stretches a wide expanse of parkland; to the left is a large plantation of some 200 specimens of Cedrus libani (is there another such a plantation in England?), a large spinney of Scots Pines, also a growth of Sequoia (Wellingtonia gigantea). Magnificent Oaks and Elms are planted in picturesque situations, between which may be discerned an attractive lake of 200 acres, the common Water Lily covering the greater part of its surface, while white and black swans and innumerable waterfowl disport themselves in its waters and on its banks; steeples of village churches can be seen in the distance, while far away on the horizon stretch the Oxfordshire downs.

The Oaks and Elms in the park are remarkably fine specimens. Of two Oaks measured at haphazard, one proved to be 29 feet 9 inches, and the other 24 feet in circumference at 5 feet from the ground; while two Elms were respectively 22 feet 6 inches and 20 feet in girth 5 feet from the ground.

On the extensive lawns extending on the west and south of the mansion are some fine examples

of *Cedrus libani* and *C. deodara*, Elms, Copper Beeches, and a very beautiful *Liriodendron tulipifera*; also near is an interesting pinetum containing over a hundred specimens, among which were *Cedrus libani*, *C. atlantica*, *Cupressus macrocarpa*, *C. Lawsoniana albo-spica*, *Pinus ponderosa*, *Tsuga Hookeriana*, *Cypresses* (brought by Miss Florence Nightingale—sister of the late Lady Verney—from Scutari on her return after the ending of the Crimean war), *Pinus jeffreyi*, *Chamaecyparis filifera*, and *Thuya occidentalis*, &c.

I had the opportunity of inspecting the state rooms of the mansion; but were I to attempt to describe a tithe of the treasures to be seen, I should require an entire number of this paper. Suffice it to say, there were beautiful staircases and chimney-pieces, intricate and magnificent carving and inlaid tables. A celebrated picture of Charles I. by Van Dyck, and portraits of departed Verneys by the above-named painter and by Lely and other celebrated artists adorn the rooms; on the walls, too, hang banners of various territorial and other regiments to which members of the family have belonged. Across the lawn stands the old parish church, which contains monuments and old brasses commemorating the Verney family. One memorial is unique. A Sir Edmund Verney was standard-bearer to Charles I. at the fateful battle of Edgehill. He was unfortunately slain, and when his body was discovered, it was found that his arm had been cut off. On search being made, the arm, with the hand still grasping the handle of the standard, was discovered and identified by a ring, and that mummified hand, still grasping the standard stock, is preserved in this church, as a memento of those stirring times.

An interesting industry carried on at Claydon is the profitable utilisation of undergrowth. There are some thousand acres of woodland on the estate, and until a few years since were only used for the preservation of game. Being near the docks one day, Mr. Milson observed some hurdles being packed on board ship for export. He thought of the undergrowth at Claydon, and soon obtained orders for similar hurdles. Now a profitable industry is being carried on in exporting hurdles of Hazel, Ash and Oak. The hurdle-making is carried on in late autumn, winter, and early spring; the workmen are liberated for highly-paid harvest work in summer and autumn; consequently a high average rate of wages is earned during the whole year—sufficient to retain the men on the soil instead of competing in the over-stocked labour market of the large towns.

It was pleasing to see that much was done for the comfort, relaxation, and intellectual improvement of the journeymen and young men working in the gardens and on other parts of the estate. Most of the points for which the British Gardeners' Association is striving are conceded at Claydon. Saturday afternoons and all Bank Holidays are given; and the few who are obliged to remain at work are equitably recompensed.

The woodland, park and gardens are under the management of Mr. Isaac Milson, who has held the position for 19 years. Mr. Milson is a successful teacher, and was for some time lecturer in horticulture to the Technical Education Committee of the Bucks County Council. I heartily tender to him my thanks for his courtesy in conducting me round these gardens, and for giving me much information. *Richard T. Hesketh.*

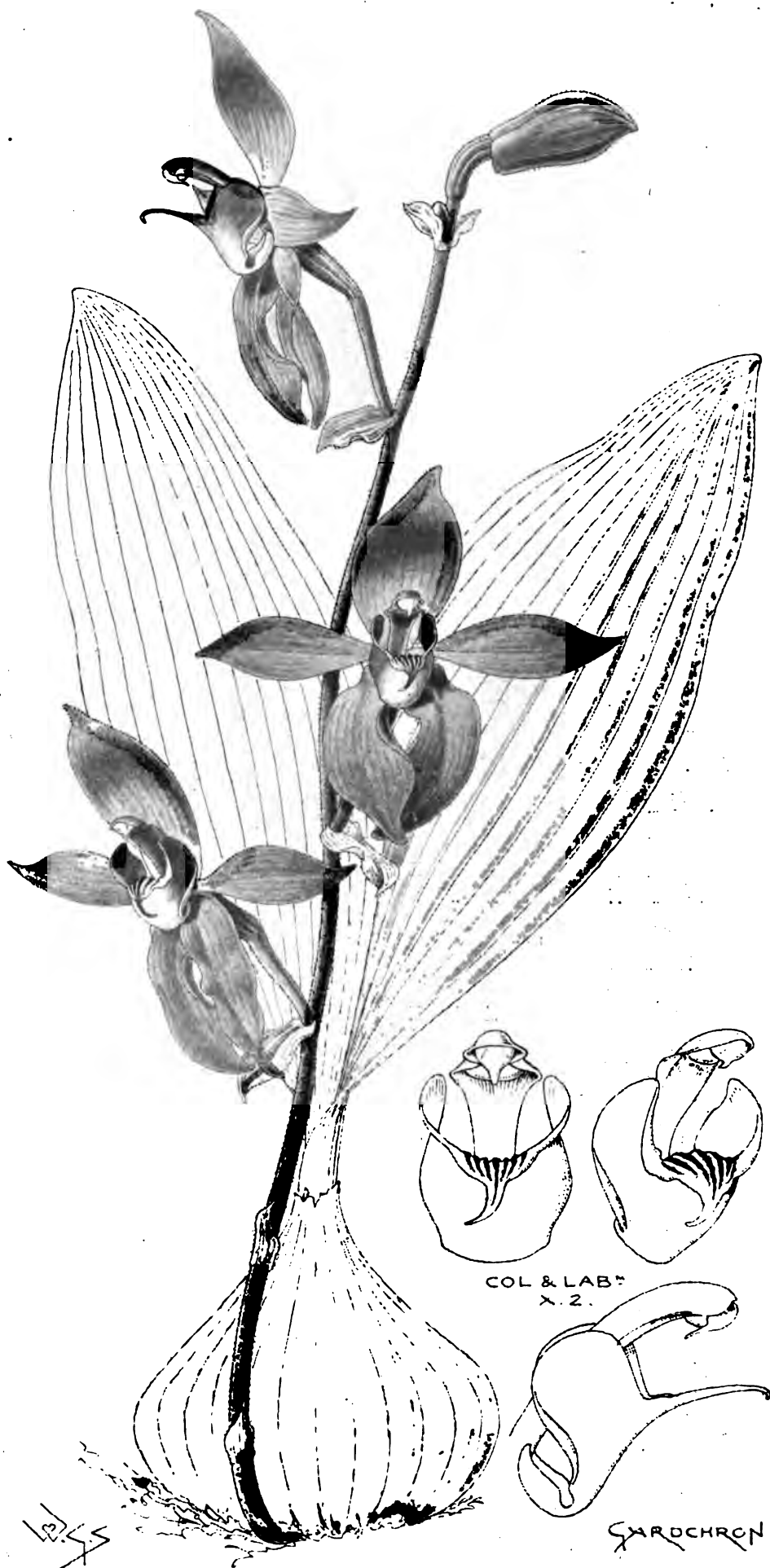


FIG. 24.—*ANCISTROCHILUS ROTHSCILDIANUS* (NEW SP.): FLOWERS ROSE-COLOURED, WITH VARIOUS MARKINGS ON THE LIP AND COLUMN (see page 51).

NEW OR NOTEWORTHY PLANTS.

ANCISTROCHILUS ROTHSCILDIANUS
N. SP.*

A new species has now to be added to the genus *Ancistrochilus*, which was wisely established by Mr. R. A. Rolfe by separating from the genus the plant known as *Pachystoma Thomsoniana*, which in many essential characters did not fit into either *Pachystoma* or any other recorded genus.

Ancistrochilus Thomsonianus was discovered by Kalbreyer in West Africa and described as *Pachystoma Thomsoniana* by the late Professor Reichenbach in the *Gardeners' Chronicle*, November 8, 1879, p. 582, and illustrated in the issue for November 15, 1879 (see fig. 25). *Ancistrochilus Rothschildianus* was obtained by the Hon. Walter Rothschild from Nigeria, and it flowered at Tring Park, Tring, and the drawing from which the illustration was prepared was made by Mr. W. G. Smith from living material (see fig. 24).

Its chief differences from *A. Thomsonianus* are as follow: its larger growth, its somewhat fleshier and softer substance, which applies to both flowers and leaves, the broader sepals, the two lower ones being in every flower of the four spikes which the plant produced so markedly connivent that in some of the flowers they

CULTURAL MEMORANDA.

POINSETTIAS.

FOR supplying a beautiful patch of colour at this dull season of the year, I know of no stove plant to equal the scarlet Poinsettia. It certainly has the drawback of a "gawky" habit of growth when seen standing individually, yet when used in that manner or in small groups rising from a groundwork of well-flowered *Eucharis amazonica*, *Adiantum* Ferns, or smaller specimens of *Crotons* or *Kentias*, I know of no more brilliant floral picture at this time of the year. For a good many years we have grown and used a large batch in this and similar ways, and the plants have always commanded the admiration of those who have seen them. It has been suggested that a few remarks on our method of culture might be of interest to some readers of the *Gardeners' Chronicle*. I should like here to emphasise an idea I have previously expressed in these columns in reference to fruit culture, viz., that local conditions have much to do with the success or failure of some varieties. The colour of the bracts on our Poinsettias certainly does seem brighter than on other equally well-grown plants in other gardens. I am sending a few bracts for inspection. We generally grow about

singly in small pots, which are plunged in sawdust in a propagating frame.

If this is not available, an ordinary low frame, with considerable bottom heat, answers quite as well. If kept well shaded from bright sunshine, and sprayed over twice each day with rain-water, a large proportion will in due time make roots freely. Other batches of cuttings are taken off as the growths lower down the old stems become long enough. For filling the cutting pots, we use any light compost that may be at hand, adding a liberal admixture of silver sand. As soon as the cuttings are rooted, we gradually harden them off, until they are fit to transfer to their flowering pots. We use 6-inch pots generally for this purpose. More care is taken with the potting material this time. Our mixture is made up as follows: Two parts loam, one part leaf-soil and manure from an old Mushroom-bed in equal proportions, with a 10-inch pot full of deodorised night-soil or fowls' dung, and one 10-inch pot full of soot to each barrow-load of soil. We add as much clean river sand as is required, and take care that all the ingredients are thoroughly well mixed together.

When the plants have been potted, the pots are plunged in sawdust on a mild hot-bed of leaves in a sunken-heated pit, where they remain until, say, the end of September or early in October, when they are transferred to a roomy, span-roofed plant house to develop their bracts. Care should be taken with watering after repotting, as if the soil gets at all sodden, many of the young plants will go off. Not much fire-heat is required in ordinary seasons during July, August, and September, though the temperature must not be let down in dull, wet weather, or the tender roots will suffer, leaves fall off, and bracts be poor. The one-year-old plants are grown in a similar way, after being cut down to the level of the pots. As a rule, they are more hardy than those propagated in the current season. If the bracts are cut for indoor decoration, we find it necessary to sear the cut end with a hot iron to prevent bleeding. H. J. Clayton, Grimston Gardens, Tadcaster, January 2, 1907.

[The bracts sent by our valued correspondent were amongst the best we have seen. From tip to tip, the diameter of the bracts was 18 inches and the best bracts were 2½ inches in width. The colour was richer and more perfectly developed than is usual.—Ed.]

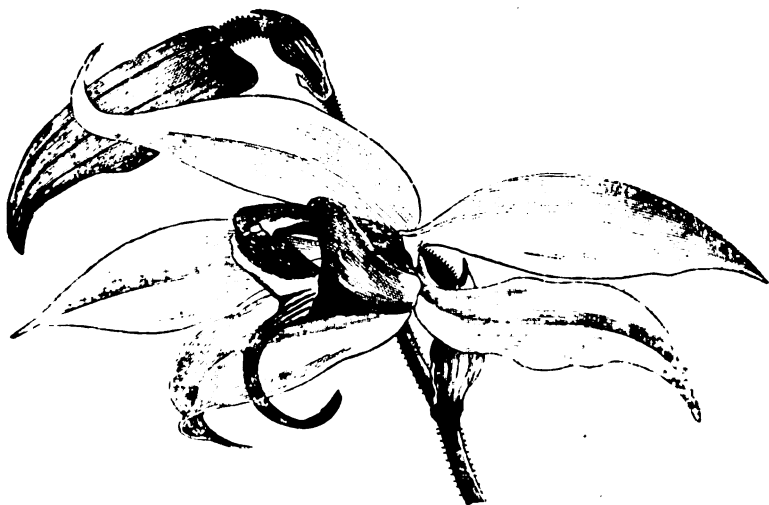


FIG. 25.—ANCISTROCHILUS (PACHYSTOMA) THOMSONIANUS.

appeared to be connate, the shorter front lobe to the lip, which has the side lobes heavily tinged with sepia-brown, and not spotted as in the other species; the broader column, and the roundish and obtuse form of the buds.

The tufted pseudo-bulbs also differ much in shape. Most of them are of the form shown on the illustration, but three are oblong, one of them being 2 inches in height and under an inch in diameter at the widest. James O'Brien.

* *ANCISTROCHILUS ROTHSCILDIANUS*, N. SP.—Pseudo-bulbs on short rhizomes, varying from conical to pyriform and orbicular, sometimes compressed on the upper part, forming obtuse angles; the largest over 2 inches in diameter and covered with a thin brownish membrane, 1-2 leaved; leaves ovate oblong, 8 inches wide, 6-8 inches long, distinctly ribbed beneath. Inflorescence minutely pilose in all its parts and more distinctly on the ovaries. Peduncles erect, 6-12 inches in height, and producing 2-4 flowers on the upper half, their pedicels sheathed by ovate-acuminate bracts about half-an-inch in length. Pedicels and ovaries 1 to 1½ inches long. Flowers about 2 inches apart. Upper sepal ovate-acuminate ½ of an inch wide, and about 1½ inches long, arched forward, and slightly concave on the inner side. Lower sepals scarcely so large, closely connivent, sometimes overlapping; all the sepals rose-pink. Petals narrower than the sepals, horizontally extended, pale rose-pink; lip three-lobed, and bearing two short and four longer raised purple lines from the base, the middle ones extending into the front lobe; side lobes broad and erect, green tinged with sepia-brown; front lobe narrow and curved down in front, purple with a yellow apex. Column arched, semi-terete at the base, widened laterally on the upper half, green tinged with reddish-purple. Habitat, Nigeria. J. O'Brien.

250 plants each year; one-third of them are cut-backs chosen from those propagated in the previous year; the remainder are from this year's cuttings. As a rule, we find the former come in for use a little earlier than the latter, though it is from the younger plants we generally get our largest bracts, as to diameter, though not so full in their centres. As the plants pass out of flower, or the bracts are cut off, we select all the best of them and lay them on their sides under the central stone stage in our plant stove. No drip can get at them there, hence it is necessary to damp over the pots occasionally with a rosed watering pot. The pipes to heat the house are under the side stages, hence the plants are not unduly excited into growth in the early spring months. This is an important point, and, to my view, under excitement is one frequent cause of the want of success. We never bring our old stools out until April if we can avoid it. Our object is to get a good batch of cuttings together. When brought out from their winter quarters we cut back any dead or decayed points, knock them out of their pots, and plunge the balls not too thickly in a bed under our early Tomatoes, which are always grown on the north side of a roomy, hip-roofed pit. When the young shoots are about 4 inches long, they are taken off with a heel, dipped at once in some dry silver sand to prevent bleeding, then inserted

PLANT-NOVELTIES IN 1906.

(Concluded from page 45.)

PLANTS FIGURED IN THE "GARDENERS' CHRONICLE."—The following novelties and rare plants have been illustrated during 1906:—

- Abies Delavayi* Franchet, April 7, p. 212.
- Abies Fargesii* Franchet, April 7, p. 213.
- Abies squamata* Masters, May 12, p. 299.
- Agave americana* (flowering), Sep. 22, p. 214.
- Aponogeton Henkelianum*, Oct. 20, pp. 270-1.
- Apple Allington Pippin* and its parents, Jan. 6, p. 3.
- Apple Miller's Seedling*, Oct. 6, p. 239.
- Apple Star of Devon*, June 9, p. 359.
- Arctotis aspera*, Supp., May 19.
- Arctotis aspera* var. *arborescens*, May 19, p. 314.
- Araucaria Cookii* (fruiting), Nov. 24, p. 352.
- Araucaria excelsa* Goldieana, Nov. 24, p. 353.
- Aristolochia Goldieana* Hooker, Sep. 8, p. 176.
- Asplenium laceratum*, Oct. 13, p. 263.
- Azara Gilliesii*, Feb. 3, p. 77.
- Begonia Purity*, July 14, p. 35.
- Beschorneria pubescens* Berger, Nov. 24, p. 350.
- Buddleia asiatica*, Feb. 17, p. 106.
- Calceolaria Kewensis* and parents, June 16, p. 390.
- Campanula carpatica* White Star, June 23, p. 409.
- Campanula laciniata*, Supp., Sep. 1.

Campanula Mayii, June 23, p. 410.
 Carduus Kernerii, July 21, p. 51.
 Carnation Britannia, March 31, p. 195.
 Carnation Elliott's Queen, March 24, p. 180.
 Carnation Nelson Fisher, March 24, p. 181.
 Carnations (Picotee) Mrs. Nigel, Gronow, and Amphion, July 28, pp. 76-7.
 Carnations Mrs. Robert Norman, Robert Craig, St. Louis, and White Perfection, Supp., Dec. 8.
 Carnation White Perfection, Nov. 3, p. 311.
 Carpenteria californica, July 7, pp. 6-7.
 Cassia remigera, Dec. 8, p. 394.
 Cassiope hypnoides, April 14, p. 226.
 Celmisia coriacea, July 7, p. 3.
 Celmisia spectabilis, July 7, p. 2.
 Ceropogon hybrida, Sandersonii, similis, and Thwaitesii, Dec. 8, pp. 383-4.
 Chrysanthemum, bi-coloured, Dec. 22, p. 436.
 Chrysanthemum Miss Till and Innovation, Dec. 15, p. 403.
 Chrysanthemum Edith Harling, Dec. 29, p. 438.
 Citrus japonica, elliptic-fruited, Jan. 27, p. 59.
 Cordyline Banksii, Oct. 6, p. 241.
 Cordyline indivisa vera, Supp., Oct. 6.
 Coreopsis Grantii, May 17, p. 162.
 Cortaderia argentea, Oct. 27, p. 295.
 Corylus columnata, Oct. 13, pp. 256-7.
 Corylopsis sinensis, Jan. 13, p. 18.
 Crocus Boryi Marathonisus, Nov. 17, p. 335.
 Cupressus nootkatensis, weeping, Sep. 1, p. 167.
 Cystopteris montana, evergreen, April 14, p. 220.
 Dasyllirion glaucophyllum, flowering, Oct. 6, p. 247.
 Davidia involucreta, June 2, p. 346.
 Dendromecon rigidum, June 2, p. 341.
 Dion edule with female cone, Oct. 27, p. 280.
 Debregeesia velutina, Supp., April 14.
 Deutzia crenata Watereri, June 2, p. 340.
 Distylium racemosum, Nov. 30, p. 303.
 Encephalartos Altensteinii, Sep. 22, p. 206.
 Fraxinus nyemalis, double, March 3, p. 139.
 Euphorbia Wulfenii, May 26, p. 331.
 Eustoma Russellianum, July 21, p. 55.
 Gilia coronopifolia, Oct. 20, p. 277.
 Gladiolus Mrs. Cecil Baring, Sep. 1, p. 158.
 Gloxinia, double, Sep. 22, p. 215.
 Guevina avellana, Sep. 8, pp. 174-5.
 Haplocarpha scaposa, Aug. 18, p. 124.
 Hippeastrum, singular hybrid, May 5, p. 275.
 Hippeastrum Madder Rose, June 2, p. 345.
 Hoodia Currori, July 28, p. 62.
 Hyacinthus lineatus, April 7, p. 210.
 Idesia polycarpa, Jan. 6, p. 13.
 Iris tectorum, white variety, Sep. 22, p. 216.
 Iris tingitana, July 14, p. 24.
 Impatiens Oliverii, Supp., Oct. 27.
 Kniphofia Goldelse, July 21, p. 43.
 Kniphofia Macowani, Feb. 10, p. 83.
 Kniphofia Nelsoni, Feb. 10, p. 82.
 Kniphofia Northii, Feb. 17, p. 100.
 Kniphofia pauciflora, Feb. 17, p. 101.
 Kalanchoe Dyeri, Supp., May 12.
 Larix leptolepis, cone, Oct. 27, p. 290.
 Larix Potanini, March 24, p. 178.
 Lathyrus violaceus, Aug. 25, p. 145.
 Leucodendron argenteum, fruits, April 21, p. 254.
 Lilium sulphureum, Sep. 15, p. 190.
 Magnolia stellata, April 21, pp. 280-1.
 Massonia pustulata, Jan. 20, p. 44.
 Meconopsis bella, Sep. 15, p. 197.
 Michauxia campanuloides, Aug. 11, p. 111.
 Montanoa bipinnatifida, Feb. 24, p. 123.
 Montbretia Prometheus, Sep. 29, p. 223.
 Narcissus cyclamineus, May 12, p. 291.
 Narcissus Emperor, Feb. 17, p. 99.
 Narcissus Pearl of Kent, May 12, p. 292.
 Narcissus viridiflorus, Dec. 1, p. 375.
 Nepeta Veitchii, Nov. 17, p. 334.
 Nephrolepis exaltata canaliculata, Sep. 15, p. 198.
 Nephrolepis exaltata todeoides, Supp., Dec. 29.
 Nerine flexuosa alba, Nov. 17, p. 336.
 Nicotiana Sanderæ at Kew, Jan. 27, p. 61.
 Nymphaea gloriosa, Aug. 18, p. 135.
 Nymphaea thermalis, Nov. 10, p. 325.
 Ochna multiflora, Supp., Sep. 29.
 Oenothera Schamini, Supp., Nov. 17.
 Omphalodes Lucilæ, July 21, p. 53.
 Opuntia Engelmanni, March 10, p. 148.
 Osmunda palustris Mayii, Sep. 1, p. 161.
 Pachira aquatica, Supp., Nov. 3.

Bedicularis sceptrum carolinum, Dec. 8, p. 385.
 Petrea volubilis, Supp., Jan. 13.
 Phlox Tapis Blanc, Sep. 8, p. 181.
 Picea complanata Masters, March 10, p. 147.
 Picea montigena Masters, March 10, p. 146.
 Picea morindoides, May 5, p. 274.
 Plumeria lutea, Supp., June 23.
 Potato, species, March 3, p. 139.
 Primrose Greenwood Pim, May 5, p. 276.
 Primula Cockburniana, Oct. 6, p. 249.
 Primula cognata, June 9, p. 358.
 Primula farinosa, Sep. 15, p. 193.
 Primula Forbesii, Sep. 15, p. 192.
 Primula japonica, Sep. 22, p. 207.
 Primula obconica, Sep. 22, p. 208.
 Primula orbicularis, June 13, p. 403.
 Primula sinensis, wild specimen, Sep. 15, p. 191.
 Primula tangutica, Sep. 29, p. 231.
 Primula vincaeflora, Sep. 29, p. 230.
 Primula vittata, Sep. 22, p. 209.
 Rhododendron Gomer Waterer, June 16, p. 393.
 Rhododendron Griffithianum, April 21, p. 243.
 Rhododendron parviflorum, May 17, pp. 164-165.
 Rhododendron yunnanense, June 23, p. 399.
 Rose Anna Olivier, July 7, p. 16.
 Rose David R. Williamson, Aug. 25, p. 143.
 Rose Dr. William Gordon, Aug. 25, p. 142.
 Rose Gottfried Keller, Supp., Sep. 29.
 Rose Queen of Spain, July 14, p. 33.
 Rubus villosus, Lucetia, July 14, p. 25.
 Salvia dichroa, Sep. 8, p. 177.
 Saxifraga apiculata, luteo-purpurea, April 21, p. 250.
 Saxifraga Boydii, April 21, p. 250.
 Spiræa millefolium, Sep. 8, p. 183.
 Sweet Peas Audrey Crier, Dora Cowper, and Etta Dyke, Supp., Aug. 11.
 Sweet Pea Rosy Morn, Aug. 4, p. 84.
 Tomato Sunrise, Oct. 20, p. 281.
 Tecoma Brycei, Supp., June 2.
 Thunbergia mysorensis, Supp., Nov. 24.
 Tsuga yunnanensis, April 14, p. 236.
 Tulipa Fosteriana, May 26, p. 323.
 Vellozia retinervis, June 9, p. 362.
 Viburnum rhytidophyllum, June 30, p. 418.
 Viola Mary Burnie, May 19, p. 306.
 Vitis Henryana, June 2, p. 354.
 Xanthorrhæa Preissii, April 14, p. 228.
 Yucca nitida, March 10, p. 153.
 Yucca Whipplei, March 10, p. 154.

THE WEATHER AT ROTHAMSTED IN 1906.

FROM the meteorological records of the Rothamsted Experimental Station, Hertfordshire, we learn that the year 1906 was notable for its exceptional amount of bright sunshine, and a corresponding high day temperature, with cool nights. There were four very warm months—January, August, October, and November, but only two, namely, April and December, which were unseasonably cold.

The total rainfall for the year shows a very slight excess over the average record in this district for the previous 53 years. There were four very wet months—January, June, October, and November, while July, August, and September were characterised by drought. Throughout mid-Herts the period of drought commenced when vegetation usually becomes active and extended, with but little intermission until the end of September, with this simple exception, that on June 28th, 2½ inches of rain fell, which brought up the total rainfall of June to 3.61 inches, being nearly 1½ inch in excess of the average for this month extending over the past 53 years at Rothamsted.

From the beginning of March to the end of September there was, even with the heavy rain of June, a deficiency in the total rainfall of 5½ inches, equal to nearly 582 tons of water deficient on each acre of land, and we shall not soon forget the almost entire absence of green in the meadows and pastures and the intense heat of the atmosphere in the daytime, resembling more what we read of in tropical

countries than the usual experience of English summers.

The night temperatures were usually cool, which moderated the mean temperature very considerably, and no doubt assisted in maintaining plant-life.

The following table shows the rainfall of each month for the past year at Rothamsted, with the average amount of rainfall for each month of the previous 53 years, and the difference of 1906 above or below the average record.

Rainfall at Rothamsted, Herts, for each month of the year, 1906, the total for the year, the average rainfall of 53 years 1853-1905, and 1906 above or below the average:—

Months.	Rainfall 1906	Average Rainfall of 53 years	1906. Above or below the average (1)
	Inches	Inches	Inches
January	4.09	2.96	+ 1.73
February	2.83	1.80	+ 0.53
March	1.64	1.84	- 0.20
April	0.80	1.85	- 1.05
May	1.38	2.20	- 0.82
June	3.61	2.39	+ 1.22
July	0.42	2.56	- 2.14
August	1.25	2.68	- 1.43
September	1.15	2.49	- 1.84
October	5.30	3.09	+ 2.21
November	4.22	2.57	+ 1.65
December	2.58	2.29	+ 0.29
Yearly total	28.77	28.12	+ 0.65

(1) The sign in the last column (+) signifies above the average, and the sign (—) below the average.

The rain gauge, which is one-thousandth part of an acre in dimension, stands 2 feet above the surface of the ground, and is about 420 feet above sea-level.

The above data show a total rainfall for the 12 months of 28½ inches, against an average for the previous 53 years of 28 1-10 inches, which is slightly over 6-10ths of an inch in excess.

In regard to the underground water supply of this district, the foregoing table shows that the total rainfall for the last three months of the year, October to December, has exceeded the average for the same period in the previous 53 years by 4.15 inches, which is equivalent to an excess on each acre of land of 93,890 gallons of water. Last year, at the corresponding period, there was a deficiency of 45,248 gallons of water per acre.

The next table shows the mean temperature in the shade for each month of the year 1906, with the excess or deficiency at the Rothamsted station during the past 28 years, 1878-1905; also the number of hours of bright sunshine recorded for each month, and the number of hours above or below the average record.

Mean temperature and bright sunshine at Rothamsted, Herts, for each month of the year 1906:—

Months	Mean Temperature		Bright Sunshine.	
	1906	Above or below Average	1906	Above or below Average
	Degrees	Degrees	Hours	Hours
January	41.0	+ 4.4	76	+ 26
February	37.4	- 0.9	85	+ 16
March	40.7	- 0.2	123	+ 10
April	44.5	- 1.1	276	+ 61
May	51.8	+ 0.6	151	- 44
June	56.6	+ 0.8	240	- 39
July	61.6	+ 0.7	272	+ 47
August	62.9	+ 3.0	253	+ 50
September	57.3	+ 1.5	206	+ 49
October	52.2	+ 4.3	96	- 11
November	44.9	+ 2.5	46	- 12
December	36.1	- 1.7	60	+ 18
For the year	48.9	+ 1.0	1883	+ 245

The mean temperature for the year was 48.9°, or one degree in excess of the average for this neighbourhood. Seven months gave an excessive amount of warmth, while five months gave a deficiency.

During the months of February and March there were 16 slight falls of snow, which totalled up to a depth, probably, of 5 or 6 inches. On the evening of Christmas Day a fall of snow commenced, and continued at intervals during the next two days, making an average depth of about 8 inches, which is the deepest fall of snow lying at one time in this district for about seven years.

The bright sunshine amounted to 1,883 hours for the whole year, being in excess of the yearly average by 245 hours. There were eight months above average, and four months below the average record. The sun shone, on an average, five hours each day throughout the year, which is nearly one hour a day longer than is usual in this open, country district.

So warm and genial was the month of October that several white cabbage butterflies were observed here on the 21st and 22nd days, and in the third week 33 different varieties of wild flowers were noted in bloom in this neighbourhood. *J. J. Willis, Harpenden.*

FORESTRY.

THE DOUGLAS FIR AS A TIMBER-TREE.

In a communication to the *Zeitschrift für Forst und Jagdwesen* for 1906, the head forester reports on a plantation of Douglas Fir which Mr. John Booth made under the auspices and with the co-operation of Prince Bismarck twenty-nine years ago. The progress has been very extraordinary. We cannot print all the details which are given in German measurements, but we may say that in the beginning of 1906 the Douglas Fir is credited with 95.68 cubic metres of timber, whilst the common Spruce (*Picea excelsa*) yielded, during the same period, only 48.64 cubic metres, so that the Douglas Fir yielded about double the amount of timber, and as the value of the Douglas Fir timber is about three times greater than that of the Spruce, it (the Douglas) has in the course of twenty-nine years benefited the planter six times more than the Spruce. Mr. Booth, who obliges us with the above details, may say with truth, "I think the question whether the Douglas Fir is a tree profitable for planting is settled."

[From specimens occasionally sent to us, it is evident that, as usual, there is considerable variation in the Douglas Fir, and that these variations are not merely of botanical interest, but that the rate of growth, and, presumably, the value of the timber are correspondingly variable. It is, therefore, of importance that foresters should study and record their observations on these variations, which are at present ill-defined.]

NOTICES OF BOOKS.

RECENT PROGRESS IN THE STUDY OF VARIATION, HEREDITY, AND EVOLUTION. By R. H. Lock. (John Murray.)

So marked has been the progress in the study of the group of phenomena included by Mr. Bateson under the term "genetics," that some general statement had become necessary for the benefit of those desirous of knowing how matters stand. It is not only that much that was previously unknown has been brought to light, but also that much that was known is shown in a new aspect. In some cases even we have to rid ourselves of old prejudices and prepossessions in order to keep pace with the recent developments of science, and especially of experimental science. It is only the few who can experiment for themselves and so obtain knowledge at first hand. A general summary is therefore needed for the benefit of those unable, from force of circumstances, to unravel the several problems for themselves. The great feature during the last few years has been the reliance on experiments. Observation, by itself, only brings to light what is. If we require to know the reason why of any phenomenon, wish

to forecast the future, or to turn our acquired knowledge to practical account, we must also invoke the aid of experiment. The trial grounds and the laboratory must take precedence over the text-book or the lecture, though they cannot altogether replace them. The present volume deals with variation and inheritance in plants and animals in their bearing upon the origin of species, and so we have in succession chapters on evolution, natural selection, biometry, mutation, hybridisation, Mendelism, and cell development (cytology), together with a concluding chapter which summarises the whole. Whilst everyone now admits that existing species are derivatives from pre-existing species, yet we do not seem to be able to arrive at any clearer definition as to what a species really is than our forefathers did. Until that question is definitely settled, there will be less of the experi-

in general adopted the Darwinian hypothesis. Are these "new" forms which De Vries has found really to be considered species? Is it certain that these "sports" are really new developments which have not existed previously, or is it not equally probable that they may have existed but have not been observed, or that they may be explained by cross-breeding? Why is that particular species mutating when others—by far the great majority—are remaining stable—at least, within what we agree to consider as specific limitations. These matters may eventually be determined by the use of the experimental method, but at present we incline to the notion that a much wider basis of experience is required before the theory of mutation can be considered as anything more than a working hypothesis. Gardeners are familiar with variations as great as those observed by



FIG. 26.—CHOISYA TERNATA FLOWERING IN DECEMBER, 1906, FOR THE THIRD TIME. HEIGHT OF PLANT, 10 FEET; LOCALITY, HAYWARD'S HEATH, SUSSEX; POSITION, SHELTERED FROM EAST AND NORTH. (See paragraph on page 10 in the issue for January 5.)

mental and more of the controversial methods of procedure. This is a misfortune that cannot be wholly avoided, but happily the direct search after the truth is progressing, and its results are so encouraging that it is obvious that to observation and experiment must be accorded far more weight than to mere argument and disputation. Whether naturalists will ever agree upon a definition of a species as distinct, on the one hand, from an individual, and on the other from a genus, is more than we can even surmise. And yet until some agreement is reached, the controversial method cannot be abandoned. When De Vries speaks of "new species" of *Oenothera* originating by "mutation" or sporting, his facts cannot be questioned, although the readiness with which naturalists have adopted his interpretation of them is a matter for surprise, especially when it is remembered how long it was before naturalists

Prof. De Vries, but it has not occurred to them to consider them as specific. Take, for instance, the Shirley Poppy: does anyone suppose that all the forms we owe originally to the perception of Mr. Wilks are separate species, or consider the infinite variety of Cabbages all derived from one species of *Brassica* growing wild in profusion on Dover cliffs and elsewhere? Are we to think of Broccolis, Cauliflowers, Kales, Savoys, the Drumheads, the Sprouts, as so many distinct species, because they now come true from seed? The range of variation in this one species is greater than what has been hitherto observed in *Oenothera*, yet no one has ventured to assign specific rank to these variants. Perhaps we ought to do so, but we venture to think the time has not yet come. The methods by which we may hope to come to some conclusion are four: (1) By observation and comparison, which is the plan adopted by the systematic

botanist; (2) statistical examination, a method coming into frequent use; (3) cultural experiments, such as gardeners have been conducting from time immemorial for their own purposes, but which now require to be carried out with more scientific aim and greater precision, and definiteness of aim; and (4) cross-breeding, which also has been, and is, carried out daily by the gardener. All these subjects are touched on in the volume before us. To those who desire to know what naturalists are doing and thinking about these matters, we heartily recommend Mr. Lock's volume. It comprises within some 300 pages a clearly-written statement, though overlaid with technical expressions, of the great problems of the origin of species, and of the manner in which those problems are being attacked by botanists, physiologists, hybridisers, students of the intricacies of cell-development, and nuclear changes, and statisticians. There can be no doubt that at no remote period practical horticulture will benefit very largely by these researches, conducted, in the first instance, with the view of eliciting the truth, and from the point of view of pure science only.

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WATSON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Pandanus Veitchii variegata.—Select the best-coloured shoots of those usually to be found growing at the base of the plant, and put them singly in small pots. Place them on a shelf in the propagating house, for they will root better in such a position than in the close atmosphere of the case or frame. Keep the roots of *Pandanus* always rather on the dry side.

Gloxinias.—The corms may now be examined and put into a warmer house in the pots which now contain them. Do not apply much water, but lightly damp them with the syringe until they have shown signs of growth, when they should be shaken out of the old soil and potted into a compost, consisting of good turfy loam, two parts, with leaf-soil and peat together, one part, adding enough sharp sand to keep the soil porous. Place the pots on a light shelf near the glass, and apply very little water during the first few weeks.

Chrysanthemums.—The earliest cuttings have probably rooted, therefore gradually admit more air to the frame, and when ready pot the plants on into 3-inch pots. Keep them well up to the light. Continue to put in cuttings of all selected varieties. Any old stools not furnishing good "cuttings" should be placed in a light and moderately warm position.

Seed Sowing.—Seeds of many choice flowering plants are very minute, and unless the greatest care is taken in handling them, some will be lost. An early start is an advantage with plants requiring a long season for growth. *Begonias*, whether intended for growing as pot plants or for planting in the flower-garden, should now be sown. Prepare clean pans, and fill them with a light, sandy soil. Make the compost moderately firm in the pans, and level the surface before sowing the seeds, which should be germinated in a warm house. *Gloxinias*, *Streptocarpus*, the greenhouse varieties of *Asparagus*, *Cannas*, *Cockscomb* (*Celosias*), *Coleus*, and *Medeola asparagoides* may all be sown now and germinated in a temperature of 65° to 70°, but care must be taken that the soil in the seed-pans never becomes dry, or germination will be unsatisfactory.

The winter garden and conservatory.—The rearrangement of the permanent occupants of these houses may now be undertaken, and such subjects as *Palms*, *Cordylines*, &c., that have outgrown their quarters may be transplanted to more suitable positions, or, in the case of *Camelias*, *Acacias*, *Grevilleas*, *Luculia gratissima*, and kindred plants, usually found in these houses, they may be pruned rather severely, and be kept rather drier at their roots than usual, after which treatment they will soon break into growth again, and regain their normal appearance.

Climbers should also be pruned and cleansed, thinning the growths according to the requirements of the individual plant. *Lapagerias* do

not require much thinning, and only the old, non-flowering wood need be removed, but the whole plant must be thoroughly inspected for thrip, which is one of its worst enemies. Preserve all the *Asparagus*-like growths that develop from the base of the plant. Slugs are very fond of the young and tender shoots of *Lapagerias*, and must be guarded against.

Passifloras, *Tacsonias*, *Cobea scandens*, and the variegated variety *Solanum jasminoides*, *Clematis indivisa*, and its variety *lobata*, *Swainsonia*, *Cassia corymbosa*, *Jasmines*, *Habrothamnus*, *Loniceras*, and *Rhynchospermum jasminoides* are all suitable subjects for training on wires under the roof-glass or up the pillars of conservatories. The majority of these subjects will now require judicious thinning of their growths. The main shoots should be trained thinly apart, and the lateral growth be allowed to hang in a natural manner, and thinned or shortened as required. If the plants are growing in tubs or in restricted borders, apply a good top-dressing of suitable soil that has been enriched with a small quantity of artificial manure, which is better than farmyard or stable manure for use in decorative plant houses. The present is a suitable time to plant climbers.

Asparagus plumosus thrives when planted in a shady corner of a border.

Hanging baskets of *Asparagus Sprengeri* and *Ferns* in variety make a welcome addition in the conservatory, and these can be interspersed with hanging baskets of *Ivy-leaved Pelargoniums*, *Begonias*, and other suitable flowering subjects.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Early vinery.—The earliest vines, which are now at their flowering stage, should, if not already done, have their lateral shoots tied to the wires, and be stopped at about two or three nodes beyond the bunch. The sub-laterals should be pinched at the first joint from their origin, subsequently rubbing out all succeeding shoots. Maintain a steady degree of heat in the vinery, and do not allow it to exceed 70° at night-time and 80 to 85° by day with sun heat. When the vines are in full flower, and the weather is favourable, admit a little outside air by means of the top ventilators, but be careful to prevent cold draughts. At the period of flowering, the atmosphere of the house should be kept dry, in order to assist dispersal of the pollen, and this should be further assisted by brushing the flowers daily with a hare's tail tied to a stick and by giving the rods a good knock with the hand. It is advisable to pollinate the free setting varieties, such as *Black Hamburgh*, first, for the brush will collect much pollen, some of which will find its way to the stigmas of varieties such as *Duke of Buccleuch* and *Diamond Jubilee*, that are fertilised with difficulty by their own pollen. If the roots of these early vines have access to the outside border, see that the latter is well protected from heavy rains and snow. When the fruit is set, test the inside border with the border-tester, and if it is dry, give a soaking with tepid water. *Muscad* of *Alexandria* should now be started into growth. Test the border, and if dry, give a good watering, but it must be remembered that this variety dislikes the least excess of water at any time.

Tomatos.—The night temperature should be 60°, and the day 5° to 10° higher. Afford ventilation daily if the weather is favourable, and maintain a dry atmosphere in the structure in which they are growing. An empty Melon pit is a suitable place for them at this season, and the pots can be placed on the old soil in which the Melons were planted. If white fly is troublesome, fumigate with *XL-All*. Young plants wintered in 2½ or 3-inch pots should now be shifted into 6-inch pots, using as a potting medium some fresh turfy loam mixed with leaf-mould, and a sprinkling of coarse, silver sand to keep the whole porous. Afford a stake to each plant, and place them near to the glass, affording a minimum atmospheric temperature of 55°, but not allowing it to exceed 70°. A vinery in which the vines are being forced into growth is a suitable place for winter *Tomatos*. Sow seeds for later supplies, and place the seed-pan on a gentle bottom heat in a pit. As soon as the seeds germinate, remove the pan near to the glass, and when the seedlings

have developed three or four leaves, pot them singly into small pots, and plunge in a gentle bottom-heat. When the seedlings have rooted in their new pots, place them again on a shelf near to the glass. Afford ventilation daily, and endeavour to have them as short-jointed and robust as possible. We prefer *Winter Beauty* to all other varieties for late winter and early spring cropping.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Control of games.—About three years ago I had occasion to seek information from a number of the leading cities and towns throughout the country regarding the method that was adopted in controlling the games played in their public recreation grounds. The result of these enquiries was a great surprise to me, as the replies received clearly indicated that the great majority of public authorities took little, if any, responsibility in the control of such games as football, hockey, and cricket when played in the public parks. From the information received, the attitude of Parks Departments generally appeared to be that, having provided the ground, and undertaken its proper upkeep, they considered that practically their duty was finished in the matter. Anyone wishing to play these or other games on any part of their recreation grounds were at full liberty to do so, as long as they did not interfere with anyone already playing there; in other words, the principle observed was simply "first come, first served."

Opposite policy.—In one or two towns I found the method they had of dealing with their grounds went to the other extreme. At these places, public recreation grounds or portions of them are rented by private clubs, who, as a matter of course, have the exclusive right to their use. Of the two methods of dealing with the ground, this is much the worse, and one would hardly expect it to be tolerated for a day in any democratic or up-to-date town. Until about two years ago, we followed the usual custom, and exercised no control over the playing of games in our recreation grounds, but recognised the right of players who were able first to occupy the ground to the use of it. Under these conditions, it was no unusual thing for a football club who were wanting a special pitch for a match, to arrange with some of their members to be out when the gates were opened in the early morning and place their goal posts in position and play more or less on the ground till it was wanted in the afternoon. In the summer time cricket pitches were "nursed" in a similar way. As a result of all this, adult players were constantly complaining to the Parks Committee that it was impossible for them to secure proper game-pitches; children complained that when the park keepers were out of sight they were driven from the positions they were occupying by older lads; parents complained that on account of teams playing so close together the recreation grounds were exceedingly dangerous for children; the general public constantly complained that as play was allowed at all times and in all weathers, the grass was worn off the ground so completely that it looked as unsightly as a bare road.

Proper management.—I suggested, year after year, that the Parks Department should remedy these matters by taking full control of all games played on its grounds. Unfortunately two words in our park by-laws prevented the suggestion from being acted upon for several years. The by-law in question states that the recreation grounds are for the "free use" of the public at all times, and it was feared by some that by taking over the control of games, the letter, if not the spirit, of the law would be broken. It was, however, gradually realised that restrictions were, after all, only put in force for the general good, and now all games in the parks are under our absolute control. No organised game is allowed unless the players have first had permission to use the ground, and even then, if it is not in a good condition, play is prohibited. It may, at first sight, seem a little strange that the result of this policy is general satisfaction to everyone concerned. As a consequence of this change, more work and responsibility have been thrown upon the staff of the department, but the satisfactory results more than repay the extra cost and trouble involved.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq.,
Cobham Park, Surrey.

Digging and ground-preparation generally should continue to be the chief work in progress in the kitchen garden. Unless there are plenty of cold frames at command, the sowing of seeds should still be done sparingly and with caution, particularly in cold and exposed localities, notwithstanding the mild, open character of the weather prevailing at the time of writing.

Mushrooms.—Collect sufficient droppings from the stables to make up a bed, in as short a space of time as possible, for if this proceeding takes too long, the first instalments will become spent and useless, and probably spoil the bed. During the time the droppings are accumulating, they should be kept on a dry floor in an open shed, and should be turned over daily to allow the most volatile products of decomposition to escape. In making the bed the manure should be well trodden down, or otherwise made very firm, after which the heat of the bed should increase considerably, but this should be allowed to fall again to about 80° before spawning is attempted. At the proper time the spawn, in pieces about 3 inches square and 3 inches deep, should be placed at regular distances of, say, 9 or 10 inches apart, all over the bed. Immediately this has been done, cover the bed with some good, sweet loam, which should be evenly and well beaten down.

Radishes.—"Earliest of All" and "Sutton's Forcing" are good varieties for sowing at the present time, and to save space this sowing can be made between rows of newly-planted Potatoes.

Chives.—In some kitchens these are in considerable demand for flavouring, while for salads they are often very useful. If clumps are lifted and put into boxes, placing these in an atmospheric temperature of about 50°, they will soon start into growth, which can be nicely blanched by the application of a top-dressing of fine leaf soil.

Tomatoes.—A moderate sowing of these should now be made to succeed the plants raised from the sowing made in autumn; there are many good varieties on the market, but few that can excel "Lister's Prolific," with its well-known, free-setting qualities, and shapely, highly-coloured fruits. Shardilow, although not so generally grown, is worthy of a place in any garden, being free-setting, and capable of producing fruits of fine form.

Chicory and Rhubarb.—Additional batches should be lifted and placed in the Mushroom house or similar structure. The former is very useful as a salad at this season. If a constant supply of Rhubarb can be maintained, it will materially assist the Apple store which, in a good many establishments, is by this time becoming somewhat depleted.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE,
Bicton, East Devon.

The Fig.—In consequence of the exceptionally warm weather during the past summer, very little protection will be needed by these plants even in the colder counties, providing too many growths were not left at the time of disbudding. Do not allow the protective material to remain a day longer than is really necessary.

Early autumn is the best time to root-prune any kind of fruit tree, but it may still be done. The Fig quickly shows, in its long, rank growths, when its roots are beyond control. If root-pruning is decided upon, open a trench 4 feet from the stem and carefully fork the soil from beneath the tree, cutting back all strong-growing roots as the work proceeds. Pay special attention to deep, plunging roots, as it is these that specially need severing. In refilling the trench, it cannot be made too firm, and old plaster, mortar rubble or lime should be freely mixed with the soil, but no manure should be added. Any partially grown fruits should have been removed as soon as the foliage fell; they are useless, and will rob the tree of much nourishment if allowed to remain.

Spraying fruit trees.—The practise of spraying is becoming more general among fruit growers, and is the only way by which they can hope to keep insect and fungus pests in check. Fungicides and insecticides for use as sprays can be purchased in convenient quantities ready for use from the horticultural sundriesmen.

Choose a calm, dry day for the work. The Apple, Pear and Plum are the three fruits that claim most attention, yet there is no reason why other kinds should be overlooked. Caustic wash spraying will not only kill insects and fungus pests, but will also free the tree of lichen, so prevalent in the moist counties of the west.

Nuts.—Bushes may still be planted. A space of 10 feet, each way, should be allowed between the plants. Nuts are best grown in the shape of a cup on a "leg," as less suckers are produced by this method of training. Plant on high, dry ground to avoid damage to the tiny blossoms by spring frosts, which are specially severe in low-lying, damp situations. Shelter should be afforded from the north and east winds if possible, and the ground need not be the richest, providing it is well drained. Frizzled, Kentish, Red and White Filberts are all free bearing varieties, while of Cobs Pearson's Prolific, Kentish and Cosford are most reliable. The annual thinning or pruning of established bushes should be undertaken. Cut out all suckers, and now that the small pink female flowers are visible, these will be a guide to the pruner, for as many as possible must remain, and in order to ensure fertilisation, a good percentage of male catkins as well. It is advisable to have a few bushes of the Cosford Cob among the stock, for the pollen of this variety is noted for its fertility. An annual top-dressing of manure should be given bushes growing in poor, stony ground, and liquid manure applied to those growing in pasture land.

The Fruit Store.—Apples will require to be looked over very frequently, as decay will now be more rapid. Afford a little ventilation a few hours each day when the atmosphere is dry outside, but keep the structure fairly dark. On the whole, Apples are keeping well this season, but Pears lasted but a short time with us, so many varieties being ripe at the same time. Glou Morceau and Passe Crasane were valuable at Christmas. Filberts and Walnuts must be kept in air-tight utensils of some sort or they will quickly shrivel.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence,
Bart., Burford, Surrey.

Miltonia vexillaria usually commences to grow during the month of August, and at that time the plants were repotted into rather small pots, but now that the growths are advancing rapidly, and the roots have become active and more numerous, the plants should be placed into pots of larger size. Being surface-rooting, *M. vexillaria* does not require much depth of soil, and the pots or pans used should be rather large in proportion to the size of the plants. For drainage, place a few large pieces of crock at the bottom, and fill to rather more than half of their depth with well-dried pieces of Fern rhizome, afterwards placing a thin layer of rough sphagnum-moss upon this. When about to repot a plant, carefully turn it out of the pot so as not to disturb the roots unnecessarily. Place the "ball" just as it is on the drainage material in a fresh pot, and fill in around it with a compost consisting of chopped sphagnum-moss two parts, fibrous peat one part, and leaf-soil, broken crocks, and coarse silver sand together one part. Stand the plants well up to the light in the intermediate house, and where plenty of fresh air can reach them; afford water in moderate quantities during the next few weeks, after which time the supply should be gradually increased. Examine the young growths occasionally and assist any of the new leaves which may have adhered to each other, or any flower spikes that have become fixed in the axils of the leaves. The distinct hybrid *M. Bleuana* and its varieties will require similar attention. Plants of *M. Phalænopsis* that are rooting and growing freely should be placed in a light and "airy" position in the Mexican house, applying liberal supplies of water to the roots.

Zygopetalums.—Growing in the same house as *Miltonia vexillaria* are the various species and hybrid *Zygopetalums*, and at the present time *Z. Ballii* and *Zygo-colax Wiganianus* are developing flower spikes. It will be noticed that the flower buds are encircled with a green sheath, and in this sheath yellow thrips frequently appear, often causing considerable damage to the flower buds before they are discovered. To avoid this, slit open the sheath and periodically vaporise the house with the

XL-All compound, or any other safe insecticide which may be preferred. Strong, well-rooted plants should be supplied liberally with water, and their surroundings should be kept fairly moist at all times. Plants of *Z. Mackayii* and *Z. crinitum* that are in need of more root room should be repotted, using a mixture of lumpy loam and peat, with plenty of crocks intermixed. *Z. maxillare* is found growing naturally on the stems of tree Ferns, upon which it is nearly always imported, and any plants which may have over-grown these stems should have a fresh piece of stem wired on to the top of the old one; the young, creeping rhizome of the plant will soon attach itself to the added portion. This *Zygopetalum* needs liberal supplies of water at all times.

Zygopetalum (Warszewiczella) Gibesia is now in bloom; the flowers, which are of a dark purplish violet colour, are very striking. The plant requires a damp, shady position in the Cattleya house, and to be always in a moist condition at the root; a light spraying overhead on fine, warm days is beneficial, and will prevent the attacks of red-spider.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow,
Cornwall.

Pergolas (continued).—The present is a suitable time to thoroughly overhaul existing pergolas. If composed wholly or partly of wood this should be carefully examined, and any that is incapable of lasting for another year should be strengthened or renewed as may be necessary. Where wirework forms a part, it may be found that the recent gales have strained the fastenings and it has lost its rigidity. Should there be any evidences of insect pests, it will be wise to unfasten all the climbers and thoroughly clean the structure, using a good proportion of petroleum in the washing mixture. The bark, when left on poles, while giving a natural and informal appearance to the pergola, affords hiding places for wood-lice and many worse enemies. The loose and semi-decayed bark, at least, should be removed. Most of the climbers may now be pruned, taking care, in the case of *Wistarias*, not to cut the flowering shoots, and in the case of *Clematis* of the *C. montana*, *C. patens*, and *C. florida* types, which flower on last year's shoots, to lay as many of these in as possible. Such kinds as *C. Jackmanni*, *C. lanuginosa*, and *C. Viticella* types, which flower on the current year's shoots, may be pruned if necessary, but most of last year's growth has been killed by frosts, so that the pruning will consist chiefly of cutting out dead wood and shortening any weakly shoots. It is too early to prune *Roses* to any considerable extent, but those trained to pergolas do not usually require any serious shortening.

Anemones.—In many localities the planting of *Anemones* has to be deferred until January. But if the collection is a large one, autumn-planting should be adopted for a portion of the stock, as this method produces earlier and larger flowers. In this case the beds should now be examined, and the surface soil loosened to allow the shoots easy passage. *Anemones* thrive best in a deep, light, rich soil, and should be sheltered from cold winds. The distance apart and depth of planting will depend on the vigour of the varieties; as a rule 6 or 7 inches apart and 3 inches deep will be ample.

The *Ranunculus* requires similar conditions, and in common with the *Anemones*, repay for copious waterings during dry weather. When planting, allow rather less room than for *Anemones*, and press the "claws" of the roots firmly into the soil. Should sharp frosts set in when the shoots first appear, some protection will be necessary.

Seeds and Seed-sowing.—It is now time to sow seeds of the various sub-tropical plants, or they will not make a good display until late in the autumn. As soon as the seedlings are large enough to handle, they should be pricked off singly. Such plants as the Castor Oil (*Ricinus*), *Eucalyptus*, &c., where large size is a desirable object, should be afterwards transferred to flower-pots and not allowed to become root-bound. It saves time, and is much more convenient, if the packets of seeds are sorted and tied into little bundles according to their requirements in the matter of time and place of sowing.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

APPOINTMENTS.

SATURDAY, FEBRUARY 2—
Soc. Franç. d'Hort. de Londres meet,
German Gard. Soc. meet.

TUESDAY, FEBRUARY 5—
Scottish Hort. Assoc. meet.
Nat. Amateur Gard. Assoc. meet.

THURSDAY, FEBRUARY 7—
Linnean Soc. meet.
Manchester and North of England Orchid Soc. meet.

FRIDAY, FEBRUARY 8—
Roy. Gard. Orphan Fund Ann. Meeting and election of candidates, at Simpson's Restaurant, Strand, London, W.C. Friendly dinner in evening.
Roy. Scottish Arbor. Soc. Annual Meeting.

TUESDAY, FEBRUARY 12—
Ann. Meeting of Roy. Hort. Soc. at 8 p.m.; Coms. meet at 12 p.m.
Brit. Gard. Assoc. Ex. Council meet.

SATURDAY, FEBRUARY 16—German Gard. Soc. meet.

THURSDAY, FEBRUARY 21—
Linnean Soc. meet.
Manchester and North of England Orchid Soc. meet.

FRIDAY, FEBRUARY 22—Roy. Bot. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—59° 8'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, January 23 (6 P.M.): Max. 30°; Min. 25°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 24 (10 A.M.): Bar., 30.6; Temp., 39°; Weather—Hard frost.

PROVINCES.—Wednesday, January 23 (6 P.M.): Max. 36° Scotland N.E.; Min. 23° Liverpool.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Border Plants and Perennials, Roses, Azaleas, Fruit Trees, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

WEDNESDAY—
Hardy Plants and Bulbs, Lilioms, &c., at 12; Roses and Fruit Trees at 1.30 and 4; and following Palms, Plants, Azaleas, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

2,692 cases Lilioms from Japan; also large quantities Hardy Bulbs, Spiræas, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 1.

Sale of Roses, Plants, Lilies, &c., at Stevens' Rooms, 38, King Street, Covent Garden, at 12.30.

WEDNESDAY, THURSDAY, AND FRIDAY—
Three days' sale of Nursery Stock at The Nurseries, South Woodford, by order of Mr. John Fraser, by Protheroe & Morris, at 11.

FRIDAY—
Choice imported Orchids, including Cattleyas, Miltonias, Odontoglossum, also a splendid lot of Dendrobium Wardianum, Giganteum, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

So far as we know, the first mention of this destructive pest **The Black Currant Gall-mite.** Rev. M. J. Berkeley, on April 16th, 1864. The next reference we find is to a note of Prof. Westwood at the Scientific Committee on March 6th, 1869, and reported in our columns at the time. In 1901 Mr. Robert Newstead (*Journal R.H.S.*, vol. xxv., gave a valuable paper on the subject, and other observers followed, who are referred to in the number of the *Journal of the Board of Agriculture* for January. Practical growers will, however, be more interested in the proposed remedies for the pest than in any historical or entomological details. Various measures have been tried with, generally speaking, little success. Some plans, theoretically sound, are not applicable

in practice where large plantations are concerned. Mr. Walter E. Collinge, in the publication above referred to, speaks very confidently of the lime and sulphur treatment as an effective remedy. After summarising various experiments with spraying at Woburn and elsewhere, Mr. Collinge details his own trials, and comes to the conclusion that a remedy is to be secured by the simple process of dusting the bushes thoroughly with a mixture of one part of unslaked lime and two parts of flowers of sulphur. A single dusting was efficacious, but three applications, on March 31st, April 14th and May 5th, sufficed to nearly exterminate the mite. The powder was used with a small pair of bellows, but the Coronette Knapsack sprayer has since been found to be more effectual. Mr. Collinge's experiments were undertaken under the auspices of the University of Birmingham, and have been repeated with great success by other observers. The plan is comparatively so easy and so little costly that it is to be hoped our growers will immediately take steps to repeat the trials for themselves and rid our plantations of an abominable pest. The work requires to be done thoroughly and at the right time, when the insects are migrating, say from the middle of April to the middle of June.

OUR SUPPLEMENTARY ILLUSTRATION.

When grown in a mass on grassy banks few plants exceed in beauty of effect the common meadow Saffron (*C. autumnale*). Its value is enhanced by the fact of its flowering outside at a dull period of the year. Although the individual flowers of this species (which is a native of this country) are not so large as those of *C. speciosus* from the Caucasus, they are produced freely in a long succession, and make up in quantity what they lack in size. The group shown in the supplementary illustration has been growing at Kew undisturbed for the last 15 years, and the plants have formed large clusters of corms, writes Mr. IRVING, each of which produces on the average about six flowers of a rosy-purple colour. The bank is a sunny one, where the corms get well ripened in summer, but at the same time there is plenty of moisture within reach of the roots during the growing period. Colchicums do not succeed well on light, sandy soil, and many failures have resulted from planting them in such. There are several varieties of *C. autumnale*, including single white, double white, double purple, and forms with striped flowers. There are several other species closely allied to this, like *C. byzantinum*, *C. cilicicum* and *C. Tenorii*, all closely resembling it in flower. One of the most distinct is *C. variegatum*, with its peculiar chequered flowers of violet and purple, but it is not usually so free flowering as *C. autumnale*. *C. Parkinsoni* is a large eastern form of this species. The largest flowered kinds are *C. speciosum* (of which there is a beautiful white variety); *C. giganteum*; and the handsome *C. Sibthorpii*.

ROYAL HORTICULTURAL SOCIETY.—Mr. ARTHUR J. GASKELL has been appointed to succeed Mr. SEDGWICK as assistant secretary.

SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, January 28, 1907, when a paper, entitled "The Uses of a Geological Collection" (illustrated by lantern), will be given by Dr. HENRY WOODWARD, LL.D., F.R.S., F.G.S., V.P.Z.S., late Keeper of Geology, British Museum, more particularly referring to the Institution geological collection which he has recently classified.

THE LABORATORY AT WISLEY.—Mr. J. F. CHITTENDEN, of the Chelmsford Laboratory, and secretary to the Scientific Committee of the R.H.S., has been appointed director of the laboratory. He will take up his duties in June next. The society may be congratulated on this very important appointment. In securing the services of Mr. CHITTENDEN they have attained not only a competent teacher, but a man well qualified to undertake original research in those subjects of scientific interest directly bearing on practical Horticulture. It must be long ere we can hope to rival Versailles and other Continental, and especially American, institutions, but it is something to have made a good beginning.

THE JOURNAL OF THE KEW GUILD.—There is a freshness and a feeling of good fellowship about this periodical which are very refreshing and render it always welcome even to those who have not the good fortune to be able to style themselves Old Kew men. The present number opens with a portrait and a short notice of the new Director, Lieut.-Colonel PRAIN, who comes to Kew with an enviable record of multifarious, good, sound work, accomplished amid almost overwhelming routine duties and many journeys in Bengal, Assam, Sikkim, Tibet, Burma, Madras, the Andaman and Nicobar islands. Whilst the gardeners in the London Parks are stated to receive pay at the rate of 27s. a week, those at Kew receive only 21s. This is an anomaly that requires reformation. The letters from "Old Kewites" in various parts of the world are particularly interesting, and the more so from their unconventional tone. The report of a lecture on India, by Colonel PRAIN, before the Kew Mutual Improvement Society, is valuable for the large amount of useful information that is compressed into five or six pages.

THE JOURNAL OF AGRICULTURAL SCIENCE for January, 1907, has an important article on the improvement of English Wheat by Messrs. A. HUMPHRIES and R. H. BIFFEN. Plant improvement has in the past been "too much associated with efforts to obtain greater yield, shapeliness, colour, &c., whilst results of great value are to be won by seeking for that most subtle of attributes—quality." This is no doubt true; moreover, it is, we think, attributable to two main causes—the desire to obtain commercial benefits as soon as possible, the other to the not always healthy emulation produced by the exhibition table. Both these factors are of great value, but they should be subordinated to experiments with the object of attaining increased knowledge without reference, in the first instance, to more practical results which are sure to follow. The most important practical results are those which arise, in the first instance, from researches of a purely scientific kind, which the practical man should know how to utilise.

"MY GARDEN DIARY."—Messrs. SUTTON & SONS, Reading, have prepared, as in former years, a useful little book bearing this title. In addition to pages for monthly memoranda it has many seasonable "reminders," and also lists of the best plants for cultivating in special conditions and positions. The cover shows a coloured picture of flowers of a Polyanthus or Bunch Primrose which, we understand, was grown last year by Miss JEKYLL in Munstead Wood Gardens. The blossoms shown are golden and white with a large gold centre, both handsome and effective.

"ONE & ALL" GARDENING.—This periodical, which issues annually from 92, Long Acre, W.C., is full of useful notes as well as of articles that garden lovers will appreciate. The editor, Mr. E. O. GREENING, under the title of Country in Town, mentions what is done and what may be done even in the most unpromising localities in and near cities. This, the twelfth issue of the Annual, is, as usual, abundantly illustrated.



Photo by E. J. Wallis.

COLCHICUMS IN SEPTEMBER IN KEW GARDENS.

Temple Press Ltd., Printers, 7-15, Rosebery Avenue, London, E.C.

THE RAINFALL IN 1906.—In a recent issue (see also p. 52), Mr. MAWLEY, who is as ardent a meteorologist as he is a Rosarian, stated that the year's rainfall was about an average one, but that by far the greatest quantity of rain fell during the months of January, February, and October. Several correspondents have kindly furnished us with tables of the rainfall in their districts, and their records show how remarkably heavy the rainfall was during these three months, especially in January and October. Thus Mr. BAYFORD, Shugborough Gardens, Stafford, recorded 4.48 inches and 4.96 inches during these months respectively, while in July his record was only 0.77 inch. In October more than 1 inch of rain fell in 24 hours. His total amount for the year was 31.15 inches. Mr. WM. J. SHORT, Freeland Lodge Gardens, Woodstock, had a smaller total fall in 25.86 inches, the wettest month in his district being October with 4.66 inches, January following with 4.15 inches. In each of the two months, April and September, less than an inch of rain was recorded at Freeland Lodge, the figures being 0.56 and 0.97 inch respectively. On three occasions more than an inch of rain fell in 24 hours in these gardens, the greatest fall being on June 29, when 1.53 inch was recorded. Mr. H. BERRY, Wilton Park Gardens, Beaconsfield, Bucks., recorded the large amount of 5.52 inches during January and three other months—June, October, and November—each with more than 3 inches, but as April, July, and August were very dry months, the average, 28.06, was about normal. Mr. H. WILSON, Cole Orton Hall Gardens, Leicester, had a similar average to the last-mentioned in 28.01 inches, but here the wettest month was October, with 5.60 inches. April and July were the driest months, which reads peculiar for April, the month usually associated with umbrellas and spring showers. On 178 days a measurable quantity of rain fell in these gardens. Wells, which had never before been known to give out, failed last season, but the last three months supplied the deficiency of the earlier part of the summer months. Mr. J. B. LOWE, D'Abernon Chase Gardens, Leatherhead, recorded a total fall for the year of 24.9 inches as against 28.46 inches in 1905. Rain fell on 157 days. The heaviest fall for 24 hours occurred on June 28, when 1.59 inch fell. The wettest month of the year was January with a total rainfall measuring 4.83. Mr. H. PARR, Trent Park Gardens, New Barnet, recorded a total rainfall for the year ending 1906 of 26.09 inches. Mr. W. A. COOK, Leonardslee Gardens, Horsham, Sussex, recorded a total rainfall of 29.84 inches for the past year. Leonardslee experienced 168 rainy days, the wettest being January 3, when more than 1 inch of rain was registered. January was the wettest month with a total rainfall of 5.51 inches, but November was not far short of this total with 5.39 inches. August was a very dry month in this district with only nine days on which a measurable quantity of rain fell, the total for the month being .61 inch. Throughout the year there were more than 5 inches of rain in excess of the total fall of 1905. In Osberton Gardens, Worksop, Mr. JAMES ALLAN informs us the hottest day of 1906 was September 2, when the thermometer registered 98° in the shade, and the coldest December 26, when there were 21° of frost. The heaviest rainfall occurred on October 18, when 1.19 inch of rain was recorded. The total rainfall for the year in these gardens was 22.34 inches.

THE WEATHER AND THE CROPS.—According to Mr. SHAW in the *Journal of Agricultural Science* (January, 1907), autumn rainfall is deficient for succeeding good Wheat years and excessive for the bad, and the character of the season for the good years is the opposite of the corresponding season for the bad years. "A good Wheat yield is preceded by a dry and warm autumn, a rather dry and warm winter, a rather wet and cold spring,

and a dry and slightly warm summer; whilst a bad Wheat year has a wet autumn of average temperature, a wet and cold winter, a dry and warm spring, and a moist, warm summer." The time at which the Wheat is sown has also to be taken into consideration.

WATER SUPPLY FOR ESTATES.—We have received a very handy little leather-covered pocket book from Messrs. HAYWARD-TYLER & CO., LTD., 99, Queen Victoria Street, London. In addition to having the usual calendar and diary for 1907, it contains much useful information relating to the supply and control of water in mansions, on estates, in villages, &c. Messrs. HAYWARD-TYLER & CO., LTD., state their willingness to forward a copy to gardeners or estate agents on receipt of professional card or noteheading.

WINTER-SPRAYING OF FRUIT TREES.—In the January number of the *Journal of the Board of Agriculture* mention is made of various experiments with insecticides carried out by Mr. W. E. COLLINGS, of the University of Birmingham:—"Out-of-door experiments were commenced in March, 1906, with the following spray-fluid:—Caustic soda (98 per cent.), 2 lb.; soft soap, $\frac{1}{2}$ lb.; paraffin, 5 pints; soft water, 10 gallons. The soft soap was dissolved in a gallon of boiling water, and whilst still hot the paraffin was added and beaten up into a creamy liquid. The whole of the liquid was then pumped with force through a fine spray nozzle in the usual manner into another vessel. The caustic soda was dissolved in 9 gallons of rain water, and into this solution the paraffin emulsion was then poured, and the two well mixed together. This spray-fluid gave excellent results, and it is proposed to substitute it in future for the caustic alkali wash of caustic soda and carbonate of potash. In all probability this spray-fluid will prove effective in destroying the eggs of all aphides, and the red spider also, though it has not yet been tried upon the latter pest."

"PROGRESSUS REI BOTANICÆ."—This is the first part of a publication devoted to the progress of botany, and edited by Dr. LOTSY, of Leiden. The first article is by Dr. STRASBURGER, and is a record in German of the progress made in our knowledge of the cell and its contents since 1875. This occupies no fewer than 138 pages, and will, we trust, be translated into English. Dr. SCOTT follows with a paper on the present position of Palæozoic Botany. There is no evidence of the existence of flowering plants in those early days. These do not appear until the mesozoic epoch. Gymnosperms (Conifers) and allied plants, together with Ferns, were very abundant. Many of the plants formerly classed with the Ferns are now found in the Pteridospermæ, a class intermediate between the Ferns and the Gymnosperms, having the seeds of the latter, but the more simple organisation of the former (Filicales). A third paper is by Prof. FLAHAULT, of Montpellier, and is a masterly summary of the progress of botanical geography since 1884, in which the necessity for determining species and their relationship to the conditions under which they live is insisted on. This paper is one which may be read with profit by those concerned in the cultivation of plants, and desirous of knowing how plants live and adapt themselves to the circumstances by which they are surrounded.

THE VINTAGE IN FRANCE IN 1906.—According to some statistics before us the total production is computed at 51,042,866 hectolitres, over a total area of 1,771,964 hectares (one hectolitre = 22 gallons, one hectare = 2½ acres nearly). The figures show a considerable deficiency as compared with the results in 1905. The colour and quality are reported good.

CHANGE OF SEX IN FLOWERS.—In the Bulletin of the Botanical Society of France (1907), M. CAMUS relates his observations on the change of sex in Willows. In some cases he was, he says, able to satisfy himself that the same male shrubs bore one year branches provided with male catkins, and the following year female catkins or ♀ catkins mixed with ♂, and without being able to determine any order in these changes. Having carefully noticed one large branch which had only yielded ♂ catkins he was surprised the following year to see it furnished entirely with ♀ catkins. Further observation showed that the branches bearing male flowers were always those which seemed to suffer or to have suffered from too long an immersion in water, branches not immersed or removed from water rarely bore any but ♀ flowers. In reference to this subject it is noted by M. GERBER that one plant of *Pistacia terebinthus*, at the foot of which water was flowing, bore in one inflorescence male flowers, female flowers, and hermaphrodite flowers while other plants of the same species, that were in dry soil in the vicinity, bore unisexual inflorescences. The following year the water had ceased flowing in the canal that ran at the base of the abnormal *Terebinth* and the inflorescences of the plant had again become unisexual.

"THE QUARTERLY JOURNAL OF FORESTRY."—We are pleased to welcome the first number of a new journal devoted to forestry. The annual reports of the English and Scottish Arboricultural Societies are valuable and interesting, but more frequent intercommunication is necessary. The first part of the new journal has been prepared by Mr. A. C. FORBES, but his removal to Ireland has necessitated other arrangements, and Prof. FISHER, of Oxford, late of Cooper's Hill, will in future act as editor, with the assistance of a Publication Committee. The proceedings of the Royal English Arboricultural Society will henceforth be included in the journal. In the present number there are interesting accounts of Kilterton, Bickton, Endsleigh and Poltimore, as visited by the society. Mr. ELWES succeeds Prof. FISHER as president. On p. 80 we note that *Picea Engelmanni* is entirely unaffected by frost in Norfolk which injured *Abies Pin-sapo* and *A. cephalonica*. In our limited experience we have found *P. Engelmanni* materially injured, or even killed, by frost on the London clay, whilst its close ally and near neighbour *P. pungens* was unhurt.

THE FERNS OF WESTERN CHINA.—In the *Bulletin of the Académie Internationale de Géographie Botanique*, Nos. 199-201 (1906), Dr. CHRIST, of Basle, catalogues the Ferns collected by Mr. E. H. WILSON on his journeying in Western China and Eastern Tibet for Messrs. JAMES VEITCH & SONS. Some 160 species and varieties are enumerated, of which, so far as is at present known, 74 are exclusively Chinese, whilst 60 others are found also along the Himalayas from Assam to the frontiers of Afghanistan, where they disappear. The great mountains of Sze Chuan, Yunnan, and Eastern Tibet form a centre from which have gradually spread to the Himalayas, by means of moist currents passing from east to west over the dry plains of Bengal, to be condensed on the slopes of the Himalaya. As many as 21 new species, and 11 new varieties are enumerated. It is interesting to compare the results obtained by Dr. CHRIST among Ferns with those relating to the Conifers of the same district recently published in the *Journal of the Linnean Society* (1906), by Dr. MASTERS.

GUERNSEY BULBS are preferred by some growers to those from Holland for early forcing purposes. They come in earlier probably because they ripen earlier, but they are not so large as the Dutch bulbs.

SEASONAL BOTANY.—This is described as being a supplementary text-book, including, I. Outline course of general botany, and II. Detailed course of physiological botany, by M. O'BRIEN HARRIS, D.Sc. (Publishers, Messrs. BLACKIE & SON, 50, Old Bailey, E.C.). The writer wishes her work to be supplementary in two points: in assisting teachers to adapt the text-book course to the round of the seasons, and in the preparation of physiological experiments. For the latter, she suggests some convenient objects of study, while the practical work is to extend over two years and be pursued with reference to the seasons of the years. Teachers in want of a plan on which to base their instructions, or whose other books do not inspire them in this direction, may find the hints

(tab. 2,816). Many of WILSON'S novelties from western China are published and Mr. HEMSLEY supplies a monograph of the genus *Corylopsis*. We are glad to notice the resumption of the capital letters in the specific names of plants named after persons, even when the names are used in the form of an adjective, as in the above cited *Stevia Rebaudiana*.

STEREOSCOPIC FLOWER RECORDS IN NATURAL COLOURS.—Examples of Mr. WALTHAM'S coloured stereoscopic representations of Orchids and other flowers may now be seen in the Botanical Room of the Natural History Museum, at Cromwell Road. The time seems to have come for the camera to replace in some measure the water-colour drawing for scientific purposes,

Publications Received.—*Report of the Agricultural Organisation Society*, for the 18 months ended June 30, 1906. This society is now nearly six years old and was formed for the purposes of co-operative work and enterprise. It is well supported and in a satisfactory condition.—*Agricultural Bulletin of the Straits Settlements*, October, 1906, edited by H. N. Ridley and J. B. Carruthers. This is chiefly occupied by notes on different species yielding rubber.—*Annual Report on the Gardens of His Highness the Maharana Fateh Singhji Badahur, of Udaipur, Mewar*. This is interesting as mentioning the different conditions under which tropical cultivators have to work. An unprecedented frost did some damage in January, 1905, and uninvited visitors from the neighbouring jungle were a source of possible danger unknown in European gardens. Notwithstanding drawbacks, the year was one of successful effort.—From the Board of Agriculture and Fisheries—Leaflets 173, *Potato Growing in Yorkshire*; No. 178, *Onion Mildew*, and No. 185, *Bean Pod Borer*.—Louisiana Experiment Station, Bulletin No. 87.



FIG. 27.—VIEW OF THE LAKE IN THE GREENWICH PUBLIC PARK. (See page 59.)

of the present writer acceptable and practical. It would be well if all young gardeners had to pass through a practical training of this sort before undertaking garden work proper. The little book before us shows how such education could be given at a minimum of cost and trouble in any village school presided over by a competent teacher.

HOOKE'S IONES PLANTARUM.—This publication devoted to the description and illustration of new or interesting plants contained in the Herbarium at Kew is now edited by Col. PRAIN, the director of the Royal Gardens. Among many others we note descriptions of two new species of *Nepenthes* by Mr. HEMSLEY, and an account of the remarkable Sugar plant from the highlands of Paraguay, a Composite called *Stevia Rebaudiana*

especially where details and diagrammatic analyses of the construction of the flower are not needed. Although stereoscopic or relief photography dates back almost to the time of Daguerre, it has not been of much real value to the scientist on account of the difficulty experienced in getting results true to nature; but in the hands of Mr. T. E. WALTHAM this difficulty no longer presents itself, for by his colour-process he is able to reproduce clearly and faithfully the venation and texture of a flower or leaf. To anyone possessing ordinary vision the brain is thus able to appreciate the effect of true colour and relief through a stereoscope, the picture being obtained by focussing the two lenses on to the object from two points of view, exactly as is done in the human eyes.

Analyses of Commercial Fertilisers and Paris Green.—U.S. Department of Agriculture, Bureau of Entomology, Bulletin No. 62. *The San Jose or Chinese Scale*, by C. L. Marlatt, and *Revision of the Tyroglyphida of the United States*, by Nathan Banks.—*Willing's Press Guide*. The present volume is the 34th annual issue of this book, which has become as a matter of course a requisite on the shelf of every editor. It contains full lists of all British and of some foreign newspapers and periodicals so classified as to be quite easy for reference. The book appears to grow a little stouter each year as if the number of periodicals were still steadily increasing.—*Annual Reports of the Jamaica Board of Agriculture, Public Gardens and Plantations*, to March 31, 1906. Mr. W. Fawcett reports favourably upon the agricultural experiment work and upon the work in the Gardens. Advance was noticeable in all departments.—*Bulletin of the Jamaica Department of Agriculture*, December, 1906. Contents: Ramie Grass, fibre machine, cultivation of vegetables.—United States Department of Agriculture, *Farmers' Bulletin*, No. 54. *Some Common Birds in their relation to Agriculture*, by F. Beal.

FLORISTS' FLOWERS.

CHRYSANTHEMUMS FOR EXHIBITION.

HAVING made an audit of the prize stands of Chrysanthemums, I enclose a list of the first 36 Japanese and 24 Incurveds with the number of times each variety was shown. I have audited the first prize stands of all the principal shows throughout the country. I find to get at the most consistent varieties this is a very good method, and to do it annually. One sees the rise of new varieties and the falling away of older sorts. For instance, this year, it will be observed, amongst the Japanese, the new varieties Reginald Vallis, Mrs. A. T. Miller, and Algernon Davis have been shown most consistently, and doubtless should be grown by every exhibitor; whilst such as W. R. Church, Mrs. Barkly, and Mrs. W. Mease, which a few years ago headed the list, are now very low down the scale. This should be a guide to all amateurs and young exhibitors.

36 BEST JAPANESE VARIETIES.

1 Mr. F. S. Vallis... 64	19 General Hutton... 12
2 Mrs. W. Knox... 40	20 Mrs. J. Dunn... 12
3 Bessie Godfrey... 32	21 Mme. J. Rivol... 11
4 J. N. Silsbury... 29	22 Mrs. A. H. Lee... 9
5 Mrs. G. Mileham... 29	23 Marquis V. Venosta... 9
6 Mme. P. Radaelli... 24	24 Mme. R. Oberthur... 8
7 Henry Perkins... 23	25 Godfrey's Pride... 8
8 Reginald Vallis... 21	26 Mafeking Hero... 8
9 Mrs. A. T. Miller... 21	27 C. Montigny... 8
10 Algernon Davis... 21	28 W. R. Church... 7
11 Edith Smith... 17	29 Magnificent... 7
12 Duchess of Sutherland... 16	30 Mrs. W. Mease... 7
13 Valerie Greenham... 16	31 Miss Elsie Fulton... 6
14 Mrs. F. W. Vallis... 15	32 Miss Mildred Ware... 6
15 President Viger... 13	33 Mrs. Barkly... 6
16 Lady M. Conyers... 13	34 Lady Henderson... 5
17 Walter Jinks... 12	35 Miss Olive Miller... 5
18 W. A. Etherington... 12	36 J. Lawrence... 5

24 BEST INCURVEDS.

1 C. H. Curtis... 13	13 W. Pascoe... 13
2 Buttercup... 14	14 Mrs. J. P. Bryce... 13
3 Emblème Poitevine... 15	15 Triomphe de Montbrun... 13
4 Duchess of Eife... 16	16 G. W. Matthews... 13
5 Mrs. F. Judson... 17	17 May Phillips... 13
6 Lady Isabel... 18	18 W. Higgs... 13
7 W. Biddle... 19	19 Taline... 13
8 Godfrey's Eclipse... 20	20 Nelly Threlfell... 13
9 Mrs. J. Denzer... 21	21 Mrs. C. Crooks... 13
10 Mme. Ferlat... 22	22 Hanwell Glory... 13
11 Mrs. B. Hankey... 23	23 Mme. Vrembley... 13
12 Pantia Ralli... 24	24 Fred Palmer... 13

—H. S. Kemp, 21, Shortlands Gardens, Shortlands, Kent.

ODONTOGLOSSUM BEAUTE CELESTE x.

At fig. 28 we reproduce one of Mr. Charles Vynsteke's latest hybrid Odonoglossums. It was raised from *O. ardentissimum* x *O. crispum*. The flower is of remarkably fine build, massive in all its segments, but of first-rate form; the side petals being pure white and very wide, the segments of the outer whorl and the lip being spotted. The lower portion and fringe of the lip are white.

NOTES FROM GREENWICH PARK.

APART from its pleasant situation and historic associations, Greenwich Park contains a great deal that is of interest to the lover of gardening, and especially of trees and shrubs. The avenues of fine old sweet Chestnut and Elm, which were planted at the instigation of Evelyn in the 17th century, and the rich collection of trees and shrubs—by far the finest in the London parks—are all worthy of inspection. The accompanying illustration (fig. 27) of the lake in Greenwich Park shows what can be done in converting a disused gravel pit into a place of interest and beauty, for not so many years ago the site of the ornamental water was an eyesore and blot on the landscape, being but a series of holes from which materials were taken for the making and upkeep of the park-roads and paths. Now, however, all is changed, and by the aid of some hundreds of loads of good soil the sloping, gravelly banks have been converted into suit-

able beds for plants, and by careful puddling of the bottom an abundance of water is at all times maintained. Amongst aquatic plants the better forms of Water Lily, the Cape Pondweed, Bogbean, Water Soldier, the Water Plantain, and hosts of other beautiful subjects have been introduced; while in dampish ground by the water margin the Mocassin flower (*Cypripedium spectabile*), the Madeira Orchid (*O. foliosa*), Gunneras, Royal Fern, *Eryngium pandanifolium*, and great reed all find a congenial home. Amongst the old Oaks and other trees on the grassy sward by the lake side, big irregular breadths of Daffodils, Snowdrops, Chionodoxa, Wood Hyacinth, Croci, and Winter Aconites have been planted, and in spring contribute largely to the adornment of one of the sweetest spots, as the late Mr. Burbidge called it, that is to be found anywhere in the great metropolis. A. D. W.

Chartreux, in 1786, falls into the same error, and it was not until the botanist Poiteau made a careful investigation of the subject that the real facts of this botanical curiosity became evident; we cannot do better than translate his remarks. "One reads stories more or less amusing about this Apple written by persons who, being ignorant of the structure of a flower, think that it is non-existent because it has no petals, and lift amazed hands at a tree which produces Apples without flowers. They are mistaken. The tree flowers, but the petals are small and green, in addition to which this flower has a remarkable peculiarity which is not seen in any other. The flower is unisexual, the anthers are entirely wanting and the styles are tripled; they number 16 instead of 5." Here we see for the first time the true explanation of the want of seeds which distinguished this fruit, and it is curious to speculate how much the Romans appreciated this fact when they named it *spadonium* (castrated); as it is generally supposed that a knowledge of the functions of pistils and stamens is a comparatively recent acquisition. Leroy in his



FIG. 28.—ODONTOGLOSSUM BEAUTE CELESTE x.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

THE SEEDLESS APPLE.—The subject of the seedless Apple has lately been much in the public mind, as it was but a few months ago that this reputed new star in the pomological firmament was first billed, with all the resources of the modern advance-agent, as about to make its appearance in the Western Hemisphere. A certain indecision seemed to reign in the mind of its alert and enterprising sponsor as to whether it should be "seedless" or "coreless." However, the arrival of the fruit itself soon settled this momentous question; it was found to be neither. To those that believe that to search for novelty beneath the sun is vain, it may, perhaps, be interesting to read the history of this curious fruit from the earliest days, as there is little doubt that it is one identical variety which has figured under various names in the course of its long and varied experiences. The first mention of a seedless Apple occurs in the *Historia Naturalis* of Pliny, which naturally carries us back to the first century of our era. The Apple was then growing in Belgium under the name of *Spadonium*, the significance of which name we shall see later, and the fact that it bears no seeds is specially mentioned. From this early date a long leap has to be taken to the year 1690, when the pomologist Quintiny mentions it, and from a superficial examination concluded that it did not flower, and therefore named it *Sans fleur*.

Dictionnaire described the fruit under the name of *Figue d'Hiver*, and the fruits he grew were completely devoid of seeds. From his description of the aborted embryos one would gather that if cross fertilised it would produce seeds. Of the many legends circulated in olden times about this fruit we may mention one quoted by Etienne Calcel in 1805. The first grafts were supposed to have been taken by Adam from the Terrestrial Paradise and the name of *Pomme d'Adam* was commonly attached to this variety. The writer somewhat naively adds that "this story is somewhat doubtful," and certainly from a physiological point of view the name of *Pomme d'Eve* would have been more suitable. Coming to later times there seems little doubt that this is the Apple referred to by Darwin as the *St. Valéry*, and which at its flowering time was fertilised by maidens of the district with pollen from their favourite Apple trees, and which in due time produced fruit exactly corresponding to that of the pollen-parent. We have been unable to trace any variety in France under this name. From the above-quoted instances of the comet-like appearances of this singular fruit its next appearance under a new name is a matter of uncertainty, but this short account may perhaps prevent it being acclaimed as a new creation by that section of the Press whose enterprise is only equalled by their credulity [and that of some of their readers]. *Nemo*. [Many details relating to the structure of this Apple are cited in Masters' *Vegetable Teratology*, p. 292, fig. 152, &c., &c. Pliny, as our correspondent points out, mentions (Book xv., cap. 14)

"spadonium,"—"a conditione castrati seminis-que Spadonium appellat Belgæ," on account of the total absence of pips. Chabreaus' *Stirpium Italicæ* (1666), p. 1, figures the flower and fruit, and refers to Gesner, Camerarius, and even to Theophrastus. "Malum dari quæ non floreat et tamen fructificet, tradit Gesnerus in Appendice Solet vero hoc Mali genus carere seminibus et est forte illud cuius meminit Theophrastus 3, de Causis, quod Malum vernam vocat et fructum edere ait sine nucleo." Parkinson's *Paradisus* (1629), p. 588, says: "The Apple without blossom, so-called because although it have a small shew of a blossom, yet they are but small threads rather than leaves, neuer shewing to bee like a flower, and therefore termed without blossom; the Apple is neither good eating nor baking fruit." In the *Theatrum*, p. 1,502, the same author mentions another [Apple], which hath no kernels within the core, and Miller, in his *Gardeners' Dictionary*, also mentions it, but apparently had not seen it. It is said to be the *passé-pomme* or *grillette* of the French.—Ed.]

RHODODENDRON BARBATUM.—This Rhododendron, the first species to flower in the new year, is not so difficult to cultivate as many persons imagine. The flowers, which are bell-shaped and blood-red in colour, are produced in trusses. The "bells" measure from 1½ to 2 inches across, and, when seen on a dull day at the end of January, or throughout February, are particularly pleasing. The leaves are long and pointed, and at their base is a cluster of strong, hairy spines that form a protection against the raids of small insects: hence the specific name. A greater pest in this country than insects are birds, especially tom-tits, which commence to pull the flowers to pieces as soon as they open. In these gardens the flowers are protected by covering some close-mesh netting high up over the tree, so that the flowers can be seen. The flower-buds are now swelling, and showing slight signs of colour. Last year the inflorescences were at their best stage about the middle of the present month, and they continued in good condition till the end of February, but the late severe weather has somewhat retarded them this season. These Rhododendrons should be afforded a little shade from the mid-day sun in summer. They flourish in a mixture of loam, leaf-soil, and manure, with a small addition of peat. They need plenty of water at their roots throughout the summer, and mulching is of very great service at all seasons. *W. A. Cook, Leonardslie Gardens.*

CATERPILLARS ON APRICOT TREES.—For several years up to the last one our Apricot trees, on a south wall, were injured by caterpillars eating the young leaves. We hand-picked thousands from the trees and applied several forms of insecticide, which, although checking them somewhat, did not get rid of them. Twelve months ago I decided to remove carefully the whole of the soil a foot in width and depth at the base of the wall, wheeling it on to a flat about to be trenched in the kitchen garden. When doing this we were careful to put the wheeled soil at the bottom of the trenches. Before putting fresh soil at the base of the wall we gave it a good dressing of fresh soot, mixing more soot and wood ashes with the soil. We then removed all the smaller branches of the trees from the wall and gave the walls a thorough syringing with soap-suds from the laundry, adding a wine-glass of paraffin to each gallon. Last year we did not see a sign of caterpillars. *H. J. C., January 14, 1907.*

MANGEL WURZEL.—In answer to *Enquirer* (see p. 48), it may be stated that the Beets of cultivation are natives of the south of Europe. Two kinds are mentioned by Pliny, the black and the white, and he states that the root was held in great esteem by the Greeks, and formed one of their votive offerings to Apollo in his temple at Delphos. The red Beet was introduced to this country in 1548, and the white variety in 1570. The varieties of the Beta vulgaris are classed as *B. vulgaris campestris*, field Beet or Mangel Wurzel, which means "scarcity root," and *B. vulgaris hortensis*, garden Beet. In the former are included all those of greatest importance to the agriculturist, and in the latter such as are chiefly confined to garden culture, and some of which are well known as valuable esculent vegetables. *J. J. W.*

THE PREVENTION OF CORRUPTION BILL.—The practice which has generally prevailed of seedsmen and other traders giving to gardeners a percentage—usually 5 per cent.—on the amount of their employers' purchases is now illegal. It is clear it is a most reprehensible custom, tempting honest men to order and consume more things than are necessary; but what I want to know is what will be done with the 5 per cent. saved? Will the nurseryman give it as discount to his customer, either directly or by reduction in price, or will he retain it as extra profit? It will be a wholesome change if employers have to raise the wages of their gardeners instead of allowing part to be paid by the tradesman, and it will be economical as well in reducing their outlay for seeds and sundries and setting them free to buy in the best markets. *East Herts. (employer).*

THE GOOSEBERRY SCARE.—Before we make up our minds to take Mr. Salmon's advice and ask the Government to stop the importation of Gooseberry plants, it would be just as well if we ascertained if any one in this country does import them. It would be bringing coals to Newcastle, that is quite certain, as the best sorts are of English origin and they are so easily propagated that our nurserymen can supply them at about 25s. per 100 and make a profit out of them at that price. I have some knowledge of the nursery trade, but I have never yet met with imported Gooseberry plants. Then what have our nurserymen, such as Messrs. Bunyard, Veitch, Low, Clibran, Cannell, &c., to say respecting *Ribes aureum* as a possible source of contamination? It is said to be used as a stock for standard Gooseberries. Do these growers employ it for that purpose? I have heard of a case in which some Gooseberries that had been worked on *Ribes aureum* failed in this country, probably because they didn't like the stock. The questions are: do we import Gooseberry plants and who uses *Ribes aureum* as a stock? *W.* [The answer in both cases is yes.—Ed.]

ROSES IN POTS.—The following method of cultivating Roses in pots may be of interest. It is practised in a large market nursery, where pot Roses are a speciality. In the early autumn seedling Briars with stems about the thickness of a pencil are trimmed at their roots and potted into 60-size pots. They are stood in a frame, or plunged into ashes in the open, until they are required for grafting about the second week in January. The stems are then severed to within an inch of the soil with a sharp oblique cut, and grafted with short pieces of wood having three or four buds of the varieties required. The scion should be about the same thickness as the stock, and, when united, bound together with worsted or soft twine, and finished with a little grafting wax. They should then be plunged in a propagating case or house having a temperature of 70°, and be slightly syringed twice a day. In a month or six weeks the scion and the stock will have united, and the buds will have developed into growth. They should then be gradually hardened off, and in a period of about two months from the time of grafting, they should be ready for shifting into 48-sized pots, using a similar compost to that recommended by Mr. Clarke. They may then be placed in a frame until June, when they should be potted into 24 or 16-inch pots—according to the amount of growth they have made—and stood out in the open. If they receive careful attention, they will produce a few flowers late in the following spring, in a cool house, and in less than two years from the time of grafting they will be magnificent plants for forcing purposes. Amongst the best varieties for this method of culture are Bridesmaid, The Bride, Niphetos, Liberté, Safrano, Perle des Jardins, Sunrise, and Catherine Mermet. *Chas. Vines, Loudwater Gardens, Rickmansworth.*

—Mr. W. H. Clarke's article on "Roses in Pots," p. 36, recalls to mind the excellent pot Roses grown by the late Mr. H. Marslen, when manager at the Isleworth branch of Messrs. Charles Lee and Son's famous nursery. A considerable number of Roses were cultivated as advised by Mr. Clarke, and with most satisfactory results. Indeed better plants than these I have not seen since. *Maréchal Niel* was especially well grown, and strong, healthy, well-ripened growths of this Rose were 10 and 12 feet in length, the result of one season's development. Mr. Marslen was an excellent propagator and cultivator of all hard-wooded plants. *C. Ruse, Munden Gardens, Watford.*

TAR AS AN INSECTICIDE.—I can endorse the statement made by Mr. J. Willis, p. 45, respecting tar as an insecticide, having for some time used it as a winter dressing for vines, &c. The thorough mixing and boiling of the components in their correct proportions I consider to be the secret of success. We use it prepared as follows:—To one gallon of finely-sifted, dry soil, add half-a-pint of pure gas tar (tar varnish should not be used); mix this in an iron pot, and place over a steady fire, adding boiling water sufficient to bring it to the consistency of paint. When cool, the mixture is ready for use. *C. Ruse, Munden Gardens, Watford.*

—On taking charge of these gardens four years ago, I found the Black Hamburgh viney was simply smothered from end to end with mealy bug, also the Muscat house adjoining had a fair proportion. The late house, fortunately, was clean, but, according to my employer, the old rods had been dressed with a very strong insecticide, most probably petroleum, and this had killed every rod in the house. In the other houses I had thirty-year-old rods, with spurs 9 inches to a foot long, to deal with. After pruning the vines I washed each rod with strong soda-water, and dressed them with a mixture of one part gas-tar to nine parts of clay. I thoroughly baked the clay and crushed it into powder. I then poured the tar on to the clay and mixed them well together. I afterwards added enough boiling water to make it of the consistency of paint, and applied the mixture when cold with an old paint brush to all parts of the rod except the "eyes." I have used this every year, and found it very effectual and safe. Our vines are practically free from mealy bug. I adopted this remedy after seeing it described in the *Gardeners' Chronicle* some four or five years ago. *J. A. Huntley, The Gardens, Oak Hall, Buckhurst Hill.*

THE USES OF TAR ON TREES.—I have used tar on trees for canker for a number of years past with the best possible results, both Stockholm and gas tar; the latter is the best. I put it on the affected parts with a small brush. The bark grows to its original state, pushing off the rough parts on which has been the canker, with the tar attached. I have also used it on Grape vines over a large cut to ensure safety from bleeding (painters' knotting also is a good remedy for this if done directly a cut is made). I have never used tar as an insecticide on plants, but, like many other gardeners, think that it would be well to use the valuable space offered in the *Gardeners' Chronicle* for discussion of the subject. *John Beams, Kensington and Chelsea Schools, Banstead, Surrey.*

BRAMBLE HYBRIDS.—In his interesting description of Raspberries and Brambles, p. 38, Mr. Baker refers to the Parsley-leaved Bramble as a distinct species, yet regards it as being merely a cut-leaved form of *Rubus Selmeri*, a common British Bramble. If that be so, is it correct to describe *Rubus laciniatus* as a species? We have no Bramble more widely grown in gardens or more generally known than is this one, yet up to the present time no one seems to know its origin. Mr. Baker seems able only to conjecture. Certainly, whilst it has all the hardy qualities of the British Bramble, and is in that respect much superior to any of the earlier American varieties, yet its fruits are finer and produced much earlier than those of any known British variety or species. It seems odd, assuming that the Parsley-leaved form started from some British species, that similar sorts have not been recorded. Mr. Baker's list seems chiefly restricted to American Brambles. That being so necessarily omits the interesting *Rubus phoenicolasius*—the Japanese Wineberry—yet this species is a common denizen of British gardens; that is, no doubt, a defined species. Our chief British Bramble Hybrid is Messrs. Jas. Veitch and Sons' "The Mahdi," one of Mr. Seden's "creations," a variety happily having no botanical name, that merits a place in all gardens, for its fine blood-red fruits are sweet and richly flavoured, following immediately on the Raspberry in ripening. Possibly next autumn the public may be permitted to see fruit of another of these Bramble Hybrids that is also red in colour, but double the size of any other similar fruit yet known. Brambles are now almost essential fruits in gardens, and what with the Parsley-leaved, the Loganberry, the Mahdi, and the Japanese Wineberry, there is a good selection wherewith to stock a special Bramble quarter. *A. D.*

BEGONIA GLOIRE DE LORRAINE.—We have plants of this Begonia growing in three plant-houses in these gardens, and I find seed-pods on plants in each house. In house No. 1, which is rather lofty, they are stood on an open stage, the night temperature in the structure being about 56°. The plants in house No. 2, which is a low-roofed Melon house, are standing on fine gravel, and here the night temperature is about 60°. House No. 3 is a low Cucumber pit, in which Cucumbers are still fruiting, the Begonias being stood on ashes. A night temperature of 70° is maintained in this building. All the plants are syringed on fine days, and they have done remarkably well this year, especially those grown on the ash bottom in the Cucumber house. They are potted in a compost of equal parts—loam, peat, and half-decayed leaf mould—with a little sand added. I notice that in every plant the seed-pod is developed from the terminal flowers, which are usually cut away as soon as the plants become a little untidy, and thus they are not allowed to develop, which may account for their being so rarely seen; and I am of opinion that if the plants are kept long enough, many of them will seed at their extreme flowering points. Our specimens have had no feeding after they were potted, but plenty of soft, pond water. I find they do not like hard water at any time. *R. Lewis, The Gardens, Bystock, Exmouth, Devon.*

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 22.—At the ordinary meeting of the Committees held on Tuesday last the display was of moderate extent, and Orchids were the chief feature. The ORCHID COMMITTEE recommended five Awards of Merit to novelties, two of which were sent by M. VUYLSTEKE, Loochristy, near Ghent. The FLORAL COMMITTEE had but one plant up for inspection, and, like the FRUIT & VEGETABLE COMMITTEE, did not make any award to a novelty. In the afternoon 50 new Fellows were elected, and a lecture was read on "Some Aspects of Fruit-growing in Japan" by Mr. N. Matsui, Director of Agriculture in Tokio.

Floral Committee.

Present: H. B. May, Esq. (in the chair), and Messrs. C. T. Drury, R. C. Notcutt, Jno. Green, T. W. Turner, G. Reuthe, C. J. Salter, C. Dixon, H. J. Cuthbush, C. E. Shea, J. T. Bennett-Poë, E. H. Jenkins, W. J. James, Jno. Jennings, W. Cuthbertson, J. Douglas, W. Howe, C. R. Fielder, R. Hooper Pearson, Rev. F. Page-Roberts, George Gordon, R. W. Wallace, James Hudson, and Edward Mawley.

Messrs. WM. CUTHBUSH & SONS, Highgate Nurseries, London, N., staged a very handsome group of flowering plants from retarded stock of such subjects as Liliaceae, including *L. lancifolium* and its white variety; *L. auratum*, &c.; Lily of the Valley, Azaleas, *Astilbe* (*Spiræa*) *japonica*, &c. Much of this group was also occupied by heavily-fruited plants of *Citrus japonica*. On an adjoining table the same firm had a goodly display of winter-flowering Carnations, all admirably grown, and a representation of a rock-garden furnished with early-flowering Alpines and dwarf shrubs. This last-named exhibit was very rich in bulbous Irises, *I. Danfordi* (yellow) being especially pleasing. We may also mention *I. stylosa*, *I. histrioides*, and a hybrid, *I. x sind-per*, a cross between *I. sindjarensis* and *I. persica*, with flowers of the clear shade of colour known as Cambridge blue. (Silver-Gilt Banksian Medal.)

Messrs. JAMES VEITCH & SONS, Ltd., King's Road, Chelsea, S.W., staged a group of spring-flowering shrubs in a setting of *Eurya latifolia*, and with plants of *Phyllostachys* as a background. Species of *Hamamelis* shown included *arborea*, *mollis* and *Zuccariniana*. A touch of colour was furnished by a row of *Rhododendron* Early Gem, and these were overshadowed by taller plants of *Magnolia stellata*, while in the centre of the group were specimens of the new *Buddleia asiatica*. Messrs. VEITCH also displayed a finely-flowered batch of *Eupatorium vernale*, a useful greenhouse subject for winter flowering, interspersed with *Jacobinia chrysostephana*, and the taller *J. coccinea*. (Silver Flora Medal.)

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, again exhibited stove and greenhouse Ferns in variety, and plants of *Primula obconica* that had been specially selected for their shades of colouring and large inflorescences. The Ferns included rare and beautiful species and varieties, all of which were shown in the best cultural condition. The collection was especially rich in *Platyceriums*. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, displayed ornamental shrubs and small Conifers. Many of the shrubs were in flower, others in berry, and some were shown for their pleasing foliage. *Daphnes*, *Eleagnus*, *Ivies*, *Bamboos*, *Ericas*, *Hamamelis*, and *Euonymus* formed the principal subjects.

G. F. RAPHAEL, Esq., Porter's Park, Shenley (gr. Mr. A. Grubb), showed large blooms of *Souvenir de la Malmaison* Carnations in glass vases amidst a setting of trails of *Asparagus Sprengeri*. The colour in the flowers was finely developed, and the blooms were very large. (Bronze Flora Medal.)

Messrs. SUTTON & SONS, Reading, displayed a large number of plants of their excellent strain of Cyclamen, in shades of the most pleasing colours that ranged from pure white to dark purple. Especially noticeable were those of a salmon shade, their "Salmon Queen" being an excellent variety. Some of the flowers showed frilled margins in the petals—the so-called fimbriated type. (Silver Banksian Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield, N., showed some well-flowered plants of Cyclamen of a good strain. This firm also exhibited admirable Carnations, among which was a sport from the well-known variety Mrs. T. W. Lawson, with petals of a very delicate shade of salmon. They also showed a handsome *Nephrolepis* named *Wietmanni*, much resembling the beautiful *N. todeoides*; plants of *Daphne indica rubra*, *Euphorbia jacquiniiflora*, &c. (Silver Banksian Medal.)

Mr. G. LANGE, Hampton, Middlesex, showed American varieties of Carnations in popular kinds. The new White Perfection is a very choice flower, which may be described as an improved Bountiful. It was admirably shown in this group. (Silver Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., showed a few interesting Alpines in flower, and bowls of bulbous plants—*Crocus*, *Galanthus Elwesii*, *Narcissus tazetta*, *N. Bulbocodium*, &c. Heavily-flowered sprays of *Jasminum nudiflorum* overhung from the background of the group.

Mr. G. REUTHE, Hardy Plant Nurseries, Keston, Kent, also showed a selection of early-flowering rock-garden plants. We noticed the recently-introduced *Hamamelis mollis*, *Damnacanthus indicus*, *Lomatia pinnatifolia*, a very stately plant by reason of its handsome foliage; *Primula megasefolia*, and the hardy *Daphne japonica*.

Collections of Alpine plants were also shown by Messrs. JOHN PEED & SON, West Norwood, and the Misses HOPKINS, Hillside Nurseries, Barming, near Maidstone, Kent.

Some well-executed paintings in oils of floral subjects were displayed by Mrs. SOPHIA MILLER, 1, Campden Hill Road, Kensington. (Silver Banksian Medal.)

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, Francis Wellesley, J. Wilson Potter, W. A. Bilney, H. A. Tracy, W. H. White, H. G. Alexander, W. H. Young, H. J. Chapman, H. G. Morris, J. W. Odell, A. Dye, H. T. Pitt, F. M. Ogilvie, G. F. Moore, T. W. Bond, A. A. McBean, F. Sander, W. Boxall, H. Little, Jeremiah Colman, and J. Charlesworth.

Major G. L. HOLFORD, C.I.E., C.V.O., Westonsbirt, Tetbury (gr. Mr. H. G. Alexander), staged a beautiful display of cut spikes of white varieties of *Lælia anceps*, in all about 150 blooms on 60 graceful spikes, including *Schroderiana*, *Stella*, *Sanderiana*, and *Ashworthiana*. In the front was a grand specimen of *Cattleya Percivaliana*, with 26 finely-coloured flowers, and with it were the new *Cypripedium Moloch* (*Charlesworthii* x *Euryades*), with a peculiar dorsal sepal of a purple colour, and tipped with white; and the orange-coloured

Lælia-Cattleya "Ariel" (*Cowani* x *aurea*). (Silver Flora Medal.)

F. DU CANE GODMAN, Esq., South Lodge, Hordsham, staged a group of splendidly-grown and finely-flowered varieties of *Lycaste Skinneri*, and including a specimen of the pure white form with nine flowers, each plant bearing many large flowers of excellent quality. At each end of the group were grand specimens of *Maxillaria grandiflora*, which secured an Award of Merit and Cultural Commendation, the group receiving a Silver Flora Medal.

Messrs. JAS. CYPHER & SON, Cheltenham, staged an effective group of *Cypripediums*, *Lælia anceps* varieties, *Odontoglossums*, &c. Among the more notable were *Cypripedium Charlesianum*, "Cypher's variety," a very large and fine flower; *C. Minos*, "Young's variety;" *C. Madame Jules Hye*, *C. vill.-exul*; a very fine dark from *C. Harrisianum*; *C. George Moore* (*Sallieri* x *Mrs. Wm. Mostyn*), a grand flower; and several other new hybrids, &c. (Silver Flora Medal.)

Messrs. CHARLESWORTH & CO., Heaton, Bradford, staged a fine group, principally hybrids, among which were several specimens of their beautiful form of *Cattleya Octave Doin*. Others noted were the fine white *Brasso-Cattleya Queen Alexandra*; a brightly-coloured *Lælia-Cattleya illustre*, and other showy *Lælia-Cattleyas*; the rare *Selenipedium Saundersianum*, with dark-reddish rose-coloured flowers; *Cypripedium exul-concolor*, bearing ivory-white flowers, marked with purple spots; a goodly selection of hybrid *Odontoglossums*, including their fine type of *O. Rolfeæ*, *O. Elaine* (*cirrosus* x *Harry-anum*), and some unnamed hybrids. The species and varieties included *Odontoglossum crispum*, with two spotted forms; in the centre of the group were two very fine plants of *Vanda Amesiana*, each bearing nine very strong, branched flower-spikes. (Silver Flora Medal.)

Messrs. SANDER & SONS, St. Albans, exhibited a very varied group of good things, in the centre being a fine plant of the rich, purplish-rose *Brasso-Cattleya Madame Chas. Maron*, with eight flowers, and the fine, large, white *Brasso-Cattleya Madame Fournier alba*. The group also contained a nicely-flowered, spotted *Odontoglossum* (*crispum* x *loochristense*), *Zygopetalum Gottianum*, with purple petals and dark violet lip; the very pretty and rare *Odontonia Laireseæ*, with a fine branched inflorescence; *Cattleya Trianae* "Blue Gown," with flowers of a decided blue tint; *Cypripedium Hitchinsiae vivicans*, having large blotches of a dark rose shade on its white, dorsal sepal; the new white *Vanda Watsoni*; a batch of *Epidendrum Wallisii* raised from seed, and a number of rare *Cypripediums*, &c. (Silver Flora Medal.)

Monsieur CHARLES VUYLSTEKE, Loochristy, Ghent, staged new and rare hybrid *Odontoglossums*, two of which secured awards. The others included varieties of the richly-coloured *Odontoglossum Vuylstekeæ* *O. percultum*, *O. ardentissimum*, &c.; a good specimen of *Cymbidium Holfordianum*, and one nicely-spotted plant of *O. crispum* named *Talma*. (Silver Flora Medal.)

Messrs. JAS. VEITCH & SONS, Chelsea, staged an effective group of Orchids, three special plants in which were the singular and pretty *Phalænopsis* Mrs. J. H. Veitch (*Luddemania* x *Sanderiana*), a variety having yellowish flowers spotted with purple, and a white lip with a few purple markings at the base; *Cypripedium Countess of Carnarvon* (*villosum giganteum* x *Euryades*), a finely-formed flower, the white, dorsal sepal being blotched with purple and coloured emerald green at the base, &c. (Silver Banksian Medal.)

G. SINGER, Esq., Coundon Court, Coventry (gr. Mr. Collyer), staged a small group, in which were cut spikes of *Phalænopsis intermedia*, and its variety *Brymeriana*; *P. Lady Rothschild* (*intermedia* x *Sanderiana*); varieties of *Cattleya Trianae*, *Cypripedium aureum* *Surprise*, &c. (Silver Banksian Medal.)

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Cypripedium Tautianum nigricans* (see Awards); *C. Euryades* "Miss Edith O'Reilly," a pretty flower with the large, white, dorsal sepal bearing rows of purple spots, and yellow petals veined with purple, and lip tinged with the same colour; *C. Cassandra*, "Westfield variety," a fine improvement on *C. callosum*, one of its parents; and *Brasso-Lælia Westfieldensis* (*B. glauca* x *L. flava*), of neat habit of growth, and bearing

white flowers with a faint green tinge on the sepals, the lip being crimped and three-lobed.

W. THOMPSON, Esq., Walton Grange, Stone, Stafford (gr. Mr. Stevens), sent *Odontoglossum Thompsonianum* (Edwardii \times crispum), for which he was awarded a First-Class Certificate on April 25, 1905. The flowers are claret-coloured with a rose margin, and tips of the segments of the same colour; the crest is yellow.

Messrs. J. McBEAN & SON, Cooksbridge, staged a small group of Orchids, which included several noble forms of *Odontoglossum crispum*, a very handsome and distinct *O. loochristense* of a bright yellow colour and uniformly blotched with chocolate brown, varieties of *Lælia anceps*, *Epiphronitis Veitchii*, two good plants of the white type of *Cymbidium eburneum*, *Oncidium serratum*, *Lælia autumnalis alba*, &c. (Silver Banksian Medal.)

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr. Mr. H. J. Chapman), showed a grand specimen of *Cypripedium Leeanum* Clinkaberryanum (for which a Cultural Commendation was voted), *Odontoglossum crispum* Theodore Pauwels (a well-formed, heavily blotched flower), the new *Cattleya Chapmanii* (Hardyana Oakwood var. \times Trianae), with dark rose sepals and petals and with a purplish-crimson lip that is veined with gold at the base; *Calanthe Sybil*, a good, pure white variety; *C. Phoebe*, of a soft pink shade; *C. Gildenii*, a large, purplish-rose flower with a claret-coloured lip; *Cypripedium Mary Amelia* (bellatulum \times Lord Derby); and a fine white form of *Cypripedium Orion* var. bellum.

Messrs. ARMSRONG & BROWN, Tunbridge Wells, staged a small group of good and finely-grown *Cypripediums*, which included *C. Minos*, "Young's variety," *C. Fascinator*, *C. Fairrieanum* purpuratum, *C. insigne* Berryanum, *C. Queen of Yellows* (insigne Sanderæ \times villosum aureum), a large and distinct flower, and other pretty hybrids. (Silver Banksian Medal.)

Mr. F. C. YOUNG, St. Albans, sent a group of hybrid *Cypripediums*, in which were *C. Clio giganteum*, *C. Tityus*, and a brighter hybrid named *C. Madame Lloyd* (Tityus \times Calypso), varieties of *C. Actæus*, &c. (Silver Banksian Medal.)

Mr. SADLER, Beedon, Newbury, showed *Cypripedium* Mad. Jules Hye, var. grandis, a large and finely-formed flower with a good dorsal sepal.

Messrs. HEATH & SON, Cheltenham, staged a group of *Cypripediums*, *Odontoglossum Andersonianum* and *O. crispum*.

Messrs. HUGH LOW & CO., Enfield, arranged a group in which were *Cypripedium Olivia*, *C. Ville de Paris*, a massive and well-marked flower; *C. Sallieri* Hyeatum, *C. Minos*, "Low's variety," *C. Thompsoni*, *C. Maudiae*, a distinct dark hybrid between *C. ciliolare* and *C. Chamberlainianum*; *Spathoglottis Lobbi*, *Platyclinis glumacea*, &c.

H. T. PITT, Esq. (gr. Mr. Thurgood), showed *Lycaste Balliæ* Rosslyn var.

Monsieur MERTENS, Ghent, showed a blue-tinted variety of *Cattleya Trianae*, *Cypripedium aureum* Hyeatum and virginale, *Miltonia Bleuana grandiflora*, &c.

Messrs. J. W. MOORE, Ltd., Rawdon, Leeds, showed hybrid *Cypripediums*.

MALCOLM S. COOKE, Esq., Kingston Hill (gr. Mr. Buckell), sent an *Odontoglossum crispum* with a branched spike.

R. I. MEASURES, Esq. (gr. Mr. Smith), sent *Cypripedium Buchananianum* magnificum and *Masdevallia melanopus*.

Mr. ROBSON, Altrincham, showed *Cypripedium Mrs. Robson* (Actæus Langleyense \times insigne Harefield Hall), a model flower with a circular dorsal sepal, green spotted with brown and with white upper part; *C. Thompsoni*, with six flowers; and *C. aureum* var.

JEREMIAH COLMAN, Esq., Gatton Park (gr. Mr. Bound), sent *Cattleya Miranda*, Gatton Park variety, a pretty rose-tinted form with purplish front to the lip, which is more tubular than in other varieties.

AWARDS OF MERIT.

Cypripedium Tausianum nigricans from FRANCIS WELLESLEY, Esq., Westfield, Woking. A most remarkable variation from the light-coloured type, the dorsal sepal being ruby-red, with a slight white margin and dark claret lines. Petals reddish rose, profusely spotted with chocolate-purple; lip, claret coloured.

Odontoglossum caloglossum (crispum \times Vuylstekeæ) from M. CHAS. VUYLSTEKE, Loochristy, Ghent. One of the finest hybrid *Odontoglossums* in size, shape and colour, the flower being large, broad in all its parts, and very richly coloured. Sepals and petals nearly covered with fine reddish claret blotches, the margins, tips, and thin spaces between the blotches being lighter. Lip white with a yellow crest, in front of which are some large dark rose blotches, then a band of white, followed by smaller spots.

Odontoglossum Ruby from M. CHAS. VUYLSTEKE. A showy hybrid of unknown parentage, the inner two-thirds of the segments being heavily blotched with claret colour, the outer third pale lilac. Lip white, with purplish blotches.

Lælia anceps Schrodera "Grace Ruby" from Messrs. McBEAN, Cooksbridge. A very fine flower, near to the handsome *L. a. S. Theodora*. Flowers white, brightly tinted with magenta crimson, especially on the petals; side lobes, and broad front lobe of the lip deep maroon colour.

Maxillaria grandiflora from F. DU CANE GODMAN, Esq. The fine species allied to *M. venusta* and bearing large white flowers.

Fruit and Vegetable Committee.

Present: Mr. Joseph Cheal (in the chair); and Messrs. W. Bates, S. Mortimer, A. Dean, Ed. Beckett, G. Kelf, H. J. Wright, W. Barnes, H. Markham, Jas. Vert, Jos. Davis, Geo. Reynolds, P. C. M. Veitch, C. G. A. Nix, A. D. Tuckett, J. Jaques, Chas. Foster, Owen Thomas, and H. Parr.

Only one collection of fruit was staged, but this was of exceptional quality, and it is only on rare occasions that produce of such excellence is seen so late in January. It was shown by the Rt. Hon. Earl STANHOPE, Chevening Park, Sevenoaks (gr. Mr. J. C. Sutton), and consisted of Grapes and about two dozen dishes and baskets of Apples. The latter fruits were plump and splendidly coloured. The varieties included Baumann's Red Winter Reinette, Woodstock Pippin, Easter Orange, King's Acre Pippin, Tower of Glamis, Blenheim Pippin, Prince Arthur, Royal Jubilee (with a beautiful deep yellow exterior), and a basket of that grand late-keeping Apple, Annie Elizabeth, shown under the name of Minchull Crab. The Grapes were also splendidly finished, the varieties being Lady Downes, Gros Guillaume, and Black Alicante. (Silver-Gilt Banksian Medal.)

Messrs. CANNELL & SONS, Swanley, Kent, showed three dozen very large, solid Onions, having the varieties Ailsa Craig, Cocoonut, and the Giant in about equal numbers. (Cultural Commendation.)

FRUIT GROWING IN JAPAN.

The Rev. W. Wilks read in the afternoon a paper furnished by the Imperial Japanese Department of Agriculture on "Modes of Pruning and Training Fruit Trees in Japan, and Routine Operations in Japanese Orchards." It appears, from the statements made by the writer of the paper, that the ordinary details of fruit culture were not so well practised in Japan as in European countries, the Japanese often preferring the blossoms to the fruit. The prevalent form of fruit training is restricted to the "table cordons" of the West, for such kinds as bear on spurs, as well as for vines. It is not uncommon in Japanese orchards to find that Pears, Date-Plums (*Diospyros kaki*), Chestnuts, and Citrus fruit trees have the habit of fruiting in alternate years, and growers believe that such a state of things is not to be changed by human interference. The system of training—on a horizontal trellis of bamboo canes on wooden posts—is widely used because of convenience of management, harvesting, and the control of insect enemies, the simplicity and durability of construction, and the securing of the maximum surface to enjoy the full sunshine on the tree. Kaki, the Persimmon, has been the most widely cultivated fruit, but of late years more attention has been given to the Peach.

The process of placing bags over the fruit has been extensively adopted by Japanese growers as a preventive measure against insects and fungi; and in South Japan, where Peaches, Pears, and Grapes are largely grown, bottomless bags made of newspapers are widely used. The time of bagging varies for different fruits; in the case

of Peaches the work of bagging is begun at the time the fruit reaches the size of ripe Cherries. In order to prevent the access of mildew, the bags are smeared on the inside with a preparation of sulphur. As to irrigation, the damp climate of Japan greatly reduces the necessity of irrigation in summer. The use of salt as a manure was advocated in certain cases.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JAN. 10th.—Committee present: E. Ashworth, Esq. (chairman), and Messrs. Sander, Rogers, Williamson, Shill, Ward, Keeling, Ashton, Cypher, Parker, R. Ashworth, Ritchie, Thompson, Thorp, P. Smith. There was a capital display of plants at this meeting. A group of plants was staged by W. THOMPSON, Esq., Stone, in which was included the very distinct *Odontoglossum* \times Thompsoni, which was awarded a First-Class Certificate last year. On this occasion the plant shown was better than when the certificate was granted, and it may be considered one of the best *Odontoglossum* hybrids.

A. WARBURTON, Esq., Haslingden, also staged a group of Orchids, in which *Odontoglossum crispum* var. "Flora Marguerite" was the most notable feature. This plant is a seedling raised from two well-known varieties of *Odontoglossum crispum*. (Silver Medal.)

Messrs. CYPHER & SONS, Cheltenham, and Messrs. CHARLESWORTH & CO., Bradford, were each awarded Silver Medals for groups. Bronze Medals were awarded to WALTER LAVERTON, Esq., Nantwich, Messrs. J. W. MOORE, Ltd., Bradford, and Messrs. KEELING & SONS, Bingley, Yorks., for groups. Mr. J. E. SADLER, Beedon, Berks, was given a vote of thanks for a group of Orchids.

Awards of Merit were granted to *Cypripedium insigne* var. Mars, *C. l.* var. Eileen, *C. l.* \times Hitchensæ var. Babette, *C. l.* \times H. var. stupendum, *C. l.* \times H. var. Thompsonianum, *C. l.* \times aureum var. delicatum, *C. l.* \times Alcibiades var. superbum, *C. l.* \times "Violet Arkle," *Odontoglossum* \times Lambeauianum, Thompson's var., all shown by W. THOMPSON, Esq., Stone; *C. l.* \times Venus, Craven's var., shown by J. H. CRAVEN, Esq., Keighley; *Odontoglossum crispum* var. Flora Marguerite, shown by A. WARBURTON, Esq., Haslingden; and *Cyp. l.* \times Transvaal var. superbum, shown by O. O. WRIGLEY, Esq., Bury. P. W.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

ANNUAL DINNER.

JANUARY 19.—Founded about 18 years ago by Mr. George Schneider, who still continues to fill the office of president, the French Society of Horticulture in London makes new friends every year. This circumstance explains the fact of there being many gentlemen present at the annual dinner, on January 19, who are not counted among the *membres titulaires*. The event took place at the Café Royal, Regent Street, under the presidency of Monsieur F. Lageat, and the guests numbered about 70 persons.

The first toast was that of "Le Président de la République," which was followed by the singing of the "Marseillaise," and after the toast of "The King and Royal Family" a verse of the National Anthem was also sung.

These pleasant preliminaries over, the chairman, speaking in French, proposed "La Société Française d'Horticulture de Londres." In doing so he said he wished to give to the younger members a little advice which might be summed up in the two words *Travail et Volonté*. The society was not lacking in examples of what can be accomplished by stubborn work and indomitable will. He could not refrain from mentioning the most striking instance. One of their honorary presidents, M. Ouvrard, who was not able to attend that function, was probably the first Frenchman to establish himself in England as a horticulturist. This happened more than 50 years ago. M. Ouvrard had succeeded mainly by hard work and the exercise of a will of iron. During more than 40 years he never failed to attend the Covent Garden market, and yet had also occupied himself during the same period in the carrying out of the practical work of the nursery. This experience was sufficient to prove that "work does not kill." M. Ouvrard is 83 years of age, but is nevertheless in good health,

and capable of exercising all his faculties. The chairman besought his hearers to imitate M. Ouvrard, and put into practice the English saying, "Where there is a will there is a way." Passing to a consideration of the subject of horticulture in France, the chairman said that the art was always greatly honoured there, and extensively practised. Doubtless the favourable character of the soil and climate had much to do with this. "*Aller planter vs choux*" was there a favourite manner of describing the retirement of a man from his business pursuits to a period of leisure, usually spent in the country rather than the towns. The whole of Europe was, more or less, dependent on France for some product of horticulture. There was, however, a shadow to this flattering picture. Every year France exports fewer Apples than previously, and unless French cultivators awake to the position, the exports will in course of time cease altogether. Northern America, by cultivating varieties more agreeable to the taste of the consumers, had nearly captured the English market, to which she imported in 1905 Apples to the value of more than 25,000,000 francs. She was also establishing a good connection in Germany, and during the past two years had sent Apples even to the Paris market itself. This was a painful situation, and he asked the younger members especially to find a remedy for it.

If France excels in out-door gardening, however, said the chairman, Frenchmen would freely admit the superior skill of Englishmen as cultivators under glass. Few large forcing nurseries existed in France, but in England they are numerous. There was, therefore, much for them to learn during their short stay in the United Kingdom, and he hoped they would continue to come here in large numbers. The aim and end of the society was to assist its members to acquire knowledge, and to bring them into companionship with each other during their absence from their own country. It included honorary and *titulaires* (effective) members. These latter were French, Belgian or Swiss, or even of other nationalities provided the individuals could speak the French language. A member may become a life member on paying a sum of £1. In 1896 the reserve fund amounted to £28 4s. 11d., and it was now £178 15s.; prosperity was also indicated by the increased number of members. He strongly urged the members to make all the use possible of the society's library and of the monthly meetings.

M. F. Lageat concluded by referring to some of the past chairmen at their banquets—Messrs. T. Bevan, J. Cutbush, Moss, Payne, Geoffray (French Minister in London), Geo. Nicholson, Percy Waterer, J. Harrison, and M. Philippe de Vilmorin. He coupled with the toast the name of Mr. Schneider, whose zeal and sympathy on behalf of the society naturally led the members to look up to him as they would to a father. The toast was received with musical honours.

Mr. Schneider, commencing his speech in French, thanked the chairman for his encouraging speech and gave some further particulars respecting the satisfactory financial condition of the society. The library was growing in importance each year and more members make use of it, but it was a matter for regret that they had not a better building for its accommodation. The room at present available was very inadequate. This subject was the only one in connection with the present condition of the society for which he felt regret. Then, "dropping" into English, Mr. Schnei'er said one of the greatest advantages members might derive from the institution was the knowledge it was possible for them to obtain from members disseminated over all the globe. M. Louis Gentil (Brussels), Drouot (Congo), Marchaud (Colombia), Suja (Madagascar), Fokouba (Japan), Scalarandis (Italy), Kitschounoff (Russia), Griessen (India), Guillochon (Tunis), were all linked with the present members and would inform them of the condition of horticulture in these respective countries. The society would also be pleased to assist in placing young Englishmen in French nurseries and gardens (see column 3). After enumerating the names of new members, honorary members, and life members, Mr. Schneider concluded by proposing the toast "*a l'Horticulture Anglaise*." The response was by Mr. J. Gaskill (Messrs Cooper, Tabor & Co.), who also proposed the toast of the "Past Chairmen." Mr. C. Harman Payne, in responding in French to this latter subject, said much water had passed under London Bridge since he presided at the seventh annual banquet. In the course of a humorous speech he said that as the members of their society

were Frenchmen, he would not recommend them courage, but he would counsel them to nurture prudence as an absolutely essential quality if they were to be successful. He concluded by proposing the toast "*Au Bureau de la Société*." This was responded to by M. P. Aquatias, who also proposed the toast "*a la Presse*," coupling this with the name of Mr. R. Hooper Pearson (*Gardeners' Chronicle*), who, in the course of his remarks, said that the society having representatives in so many parts of the globe, was in some degree in the same happy position as the Kew Guild. Mr. Geo. Gordon, V.M.H., and Prof. A. P. Huguenet, Editor of *La Chronique* (London), also made a few remarks. Subsequently, the younger members of the society made a presentation to Mr. George Schneider in thankfulness for his kindness to them.

NATIONAL POTATO.

JANUARY 22.—The adjourned annual meeting of this society was held at the Hotel Windsor, Westminster, on Tuesday last. Mr. George Gordon, V.M.H., presided, and there were eleven members present.

An amended draft of the report was presented by the committee, and there being nothing in this which committed the society to any programme for 1907, the opposition which carried the resolution at the previous meeting was satisfied.

THE REPORT.

The Trials.—An important part of the society's operations during the year has been the conduct of the trials of novelties and older varieties. The committee have been extremely fortunate in having the experienced and practical aid of Professor T. H. Middleton and Mr. H. Henshaw in the carrying out of the chief trials at the Cambridge University Farm at Impington. This season there have been trials of seedlings and novelties. The major section was devoted to novelties which are ready to be placed on the market, and the minor to seedlings which have not yet reached that stage. Altogether there were 22 varieties entered. The full tables of the results are published in the society's "Year Book," but the yields of the minor section will only be notified to the owners. The members of the society who visited the trial ground in August were able to form a high opinion of the value of these trials, and to realise the thoroughness with which they were conducted, whilst the unremitting care taken to ensure an accurate record was strikingly manifested. It is a matter for regret that the society in the future will lose the valued assistance of Professor Middleton, carrying out its trials, but the committee feels that the members will all join in their hearty congratulations to him in his new appointment at the Board of Agriculture. It is hoped that the society will be able to make arrangements for a continuance of the useful co-operation of the Department of Agriculture, at Cambridge University, in carrying out its trials of new and other varieties. At many of the County Council centres trials have been continued, and in several instances a repetition has been made of the trials of Potatoes grown at various distances apart. The committee are greatly indebted to the various secretaries for arranging the trials and furnishing the reports, which will be filed for future reference.

The Show.—As an experiment this year the date of the exhibition was fixed to synchronise with the Smithfield Club Show. It has, however, been found that the date was too late in the year to suit southern growers, whilst many of the trade growers found it impossible to exhibit at both shows. This year's show was smaller, therefore, as regards the total number of entries, although members will agree that it was not lacking in its interesting features.

The Year Book.—With a view to providing fuller scope for circulating authoritative information on Potato growing, a "Year Book" has been produced under the editorship of Mr. Horace J. Wright and the Honorary Secretary. Besides the interesting articles from experts, the lucid and informative report of Professor Middleton as to the Impington trials will prove a splendid addition to the existing records.

The Officers.—Owing to pressure of work, Mr. A. D. Hall has been compelled to resign the chairmanship, to the committee's great regret. Another resignation much regretted was that of Mr. W. P. Wright, to whose energy and organising ability we owe the foundation of the society. On the retirement of Mr. Wright, the committee, with a view to lighten the secretarial work, thought it advisable to separate the offices of honorary secretary and treasurer, and they congratulate the society on their having been able to obtain the services of Mr. W. H. Adsett and Mr. Charles Foster in the respective positions.

The financial statement showed a balance of £24 6s. 9d. on the right side.

The Chairman briefly moved the adoption of the report and balance-sheet, which was seconded by Mr. Horace J. Wright, and accepted without discussion.

Following the acceptance of the report, Mr. Walter P. Wright delivered a long speech, in which he explained the reasons that had compelled him for a time to give up the work he had previously done for the society, and declared he had now come forward again to help it out of a difficulty. He discussed the agricultural side of the question, saying that he believed the society could not look to agriculturists supporting its funds in the future, and the committee might expect to see many of them secede from membership. He thought the society could not continue to live unless

its scope was widened. It must be made more horticultural, and he suggested for future discussion that the society be made to embrace other kinds of vegetables. After speaking on the question of immediate policy, Mr. Wright said he was able, on behalf of the authorities of the South-Eastern College at Wye, to invite the society to hold a show there during the present year between August 30 and the middle of September. The authorities would provide the society with free rooms, exhibition hall, &c., and would entertain the officials during its visit. He concluded by moving a resolution to the effect that the annual exhibition of the society shall be held at Wye, Kent. The resolution was seconded by Mr. C. H. Curtis.

Mr. W. Cutbush remarked that Mr. Wright had said that the agricultural trade had deserted the society, and it was just as true that the horticultural trade would also desert it. He had a letter in his pocket from Mr. Arthur Sutton, stating that Messrs. Sutton & Sons would have nothing further to do with the society. He (Mr. Cutbush) could see nothing for the society to do but to wind up. The balance-sheet showed no greater balance than was needed to discharge their liabilities. He declined to share the responsibility of arranging for another exhibition.

Mr. Poad and Mr. Scarlett both described the feeling in Scotland that exists against the society, which Scotch tradesmen thought to be of very little use to them. Upon Mr. Wright's resolution being put to the meeting there were four supporters, and the chairman declared the resolution carried.

The election of officers was then proceeded with as follows:—Sir John Llewelyn, Bart., president; Mr. Geo. Gordon, a vice-president, in addition to the re-election of the other vice-presidents; chairman, Mr. Walter P. Wright; and vice-chairman, Mr. Malden. Various changes were made in the membership of committees.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The annual meeting for the election of pensioners is taking place as these pages are going through the press. A report will be published in our next issue.

GARDEN CHANGES.—Mr. C. J. SALTER has resigned his position as gardener at Woodhatch Lodge, Reigate. Those who have visited the gardens of the late Mr. T. B. HAYWOOD, will remember the evidence they afforded in-doors and out-of-doors of excellent cultivation on the part of Mr. SALTER, who we hope will soon secure another situation suitable to his abilities. Mr. GEO. KELF is also relinquishing the charge he has had at South Villa, Regent's Park, London, owing to the recent decease of the proprietress. Mr. KELF has won many medals for good cultivation in London and should be a specially valuable gardener for a gentleman whose garden is surrounded by an atmosphere peculiar to large towns.

THE ROTHAMSTED AGRICULTURAL STATION.—The Rothamsted Experimental Station (Lawes Agricultural Trust) has received a donation of £2,000 from the Permanent Nitrate Committee, to be invested and added to the general endowment fund of the Station. A donation of 100 guineas has also been received from the Fertiliser Manufacturers' Association. During the past summer the Station entered into occupation of the "James Mason" Bacteriological Laboratory, the gift of Mr. J. F. MASON, M.P. The Society for extending the Rothamsted Experiments, which was formed to obtain funds where-with the Experimental Station might enlarge the scope of its work and initiate further agricultural investigations, has further received during the past year subscriptions and donations amounting to £240. Further subscriptions are still urgently needed to secure a more adequate staff, and may be addressed to the Secretary of the Rothamsted Experimental Station, Harpenden, Hertfordshire.

OPENINGS FOR YOUNG ENGLISH HORTICULTURISTS IN FRANCE.—The following is an extract from a speech delivered by the president, Mr. GEORGE SCHNEIDER, at the annual dinner of the Société Française d'Horticulture de Londres, of which a report appears on this page:—"It should be borne in mind that if it (the Society) helps to place young Frenchmen here, it also places in France any young Englishmen desirous of going there. We are sending a young fellow near Paris, in February, to join those placed last season by the Society. It is true, however, there are not many who avail themselves of the opportunity, but I may safely say that all Englishmen who have made application have been suitably placed by us, and it is satisfactory to state here that these young fellows generally remain connected with our Institution."

Obituary.

DR. WINTER.—John Newnham Winter, M.R.C.S., L.S.A., who died at 18, Lichfield Road, Kew Gardens, at the age of 76, on Friday, January 18, from heart failure following influenza, had the finest private collection of filmy Ferns in this country. He corresponded with Kew and Backhouse's, of York, and imported Ferns himself from the West Indies, New Zealand, and Mauritius. Dr. Winter was, for 40 years, one of the principal medical practitioners in Brighton, and he used to attend to his Ferns himself every morning before beginning his medical work. When he retired from active work he removed to Kew and brought with him his collection of filmy Ferns, and began with characteristic energy to grow Alpine plants. Into the small garden behind his house he brought many tons of rock, so that nearly his whole ground was turned into a series of rockeries. He regularly went to the shows of the Royal Horticultural Society in Vincent Square, and used often to wait until closing time and buy up the plants he wanted and come home laden with treasures. Dr. Winter learnt his Botany when attending lectures by Dr. Lindley in the Chelsea Botanic Gardens. He was a man of remarkable originality and kindness, much beloved by his many patients and friends. The funeral took place at Brighton on Monday, January 21. Edna Lyall, the novelist, was a niece of Dr. Winter's.

T. S. JERROLD.—Mr. Thomas Serle Jerrold, the youngest child and the last surviving son of Douglas Jerrold, died on Sunday last. He studied horticulture under Sir Joseph Paxton at Chatsworth. For many years he was a writer on garden subjects in this and other journals, and was the author of "The Garden that Paid the Rent," "Our Kitchen Garden," and (with his wife, a daughter of Robert Copeland, of Liverpool) "Household Horticulture." Mr. Jerrold, who had lived in Canada for 18 years and returned just over a year ago, leaves four sons and three daughters.

ANSWERS TO CORRESPONDENTS.

AFRICAN RUBBER: *Half a Century Subscriber.* The trees would be *Hevea brasiliensis* (Para rubber) or *Castilloa elastica*. In the Congo State large use is made of various climbing plants, chiefly species of *Landolphia*. See Messrs. De Wilde-man and Gentil's *Lianes Caoutchifères*, to be had from the office of the Congo State, Brussels.

BEDDING PLANTS: *Constant Reader.* To be planted with the *Salvia patens* we should suggest a row of *Aster sinensis* (mauve), then a row of white Stocks alternated with *Phacelia campanularia*, and an edging of dwarf, white *Antirrhinum* alternated with *Alyssum maritimum*. If you have them, pyramid or standard *Heliotropes*, placed about 5 feet apart along the middle of these beds would be effective; failing this, you could sow seed of either *Eucalyptus coccifera* or *E. coriacea*, and use the young plants instead of *Heliotropes*. In the two beds to be backed with white *Marguerites* plant next to these a row of *Godetia* "double rose" alternated with *Lobelia cardinalis*, then scarlet *Salpiglossis* and white bedding *Asters*, edging the bed with dwarf, scarlet *Antirrhinum* alternated with *Chamæpeuce cassabonæ*, or if much colour is preferred, substitute scarlet *Begonia semperflorens* for the *Chamæpeuce*. At each end plant a row of large flowered *Mignonette*; the fragrance will be acceptable to persons using the seats. For these beds either of the *Eucalyptus* named may be used as "dot plants." With the exception of *Lobelia cardinalis* the plants named are used as annuals, and if *Lobelia* seed is sown in heat at once, the plants will be large enough to flower this year. As you say you have ample convenience for raising plants, it would be advisable to make several sowings of *Mignonette*, and grow on the plants in pots to replant three or four times during the season. Seeing that the flower beds are in front of groups of shrubs it will be necessary to deeply dig the beds, or the roots from the shrubs will rob the bedding plants. *Salvia patens* and *Lobelia cardinalis* require copious waterings during dry weather.

BUYING ORCHIDS: *W. J. D.* If you can spare the time to attend sales, or have a trustworthy agent to represent you there, you can often purchase the kinds you mention at the sale-rooms

to advantage. Otherwise you should ask for a quotation of prices from the Orchid nurserymen. Prices vary, but all those you mention are showy and cheap.

CORRECTION: In Mr. Baker's paper on Brambles and Blackberries the name of No. 12 on p. 84 should have been *R. vitifolius* Cham. et Schlecht., not *R. nigrobaccus*, Bailey, which is the name of No. 11, and was duplicated by a printer's error.

LARIX OCCIDENTALIS: *H. R.* We do not know from whom you could obtain seeds of this plant, but it is probable that some of the American nurserymen have them. A gentleman recently left England for the purpose of collecting seed if possible. This species is considered to have superior qualities to those of the common Larch.

LOAM FOR CYPRIPEDIUMS: *Mr. P.* You had better apply to a firm of horticultural sundriesmen.

MANURE FOR VEGETABLE GARDEN: *B. B.* It appears very probable that the soil of the garden has been over-manured with stable dung, and so has become excessively charged with humus matter, and got into a sour condition. It would be advisable to stop the dung for a few years or only to supply a small quantity. Give the soil an immediate dressing of basic slag, 7 lbs. to each pole of ground; this should be dug in so as to get well incorporated with the soil before sowing and planting begins in spring. This dressing may advantageously be followed in about a month's time by 5 lbs. of lime to each pole of ground. If you can get lime finely pulverised, but not slacked, it will be best, but if this cannot be procured, then use ordinary quicklime. This should be lightly forked or raked in. Slag is best to mix with the lower layers of soil, and lime with the surface, where it corrects the acidity and assists the micro-organisms in their work of nitrification. When too much dung has been used a process termed "denitrification" takes place, which prevents the nitrifying bacteria from working. The application of slag and lime corrects this evil, and sets the nitrate-forming organisms again at work. If you are planting Cabbages again this year use a little nitrate of soda as a top dressing around each plant when they are fully established, or a little finely sifted fowl manure would answer the purpose.

MUSHROOM SPAWN: *J. K.* There is very little sign of spawn in the sample you send, but whether it was there originally and has failed to grow we cannot tell.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **FRUITS:** 1, *Pile Russett*; 2, *Welford Park Non-such*; 3, *Lane's Prince Albert*.

PLANTS: *W. O.* 1, *Cupressus Lawsoniana*; 2, *Sequoia sempervirens*, Red-wood; 3, *Juniperus virginiana*; 4, *Tsuga canadensis*, the Hemlock Spruce.—*S. S.* *Narcissus odoratus rugulosus*.—*B. H.* *Mesembryanthemum falciforme*.—*E. G. Richmond*. Both *Oncidium prætexatum*.—*R. S. K.* The flowers were faded on arrival, but they are doubtless of *Zygopetalum crinitum*.—*J. P. R.* 1, *Codiaeum (Croton) pictum*; 3, *Codiaeum Weissmanni*. Apple next week.—*C. B.* *Epidendrum ciliare*.—*A. D.* 1, *Cypripedium Mons. de Curte* (*Boxallii* × *insigne* Chantini); 2, *C. Astrea* (*philippinense* × *Spicerianum*).—*W. D.* 1, *Pteris longifolia*; 2, *P. cretica cristata*; 3, *P. tremula*; 4, *P. serrulata*; 5, *Nephrodium molle*; 6, *Davallia Mariesii*; 7, *Pteris umbrosa*.

NUTS: *W. H. R., Worksop.* The Brazil nut-like specimens are *Sapucaia* nuts, the produce of a tall, tropical South American tree, *Lecythis ollaria*. The small nut is a species of *Carya* or Hickory allied to the Walnut.

PEACH TREES CASTING THEIR FLOWER-BUDS: *R. H. C.* Your five-year-old, strong-growing Peach trees received a check during the summer or autumn of last year, and this has taken effect as soon as you commenced to force them. Probably the borders in which the trees are growing have been allowed to become dry (instead of being kept uniformly moist all the year through), and the foliage may have been left to become a prey to red-spider after the crop of fruit was taken. The watering of the borders should receive continued attention after the crops have been taken and up to the time the trees shed their leaves; the trees being syringed thoroughly overhead on the morning and afternoon of bright days until the foliage begins naturally to change colour. We have never known trees of the variety you mention that were planted in properly-prepared borders and subsequently properly attended to in the details we have pointed out cast their fruit-buds. You say you have kept the borders well watered, but have you ever examined them a day or two after watering to ascertain the real condition of the soil 18 or 20 inches from the surface? If you have not you are, so to speak, working in the dark. It is essential to apply sufficient water to thoroughly moisten the whole of the soil forming the border.

ROSE STEMS BORED BY GRUBS: *G. W. L.* The Rose shoots contain little colonies of the larvæ and pupæ of a small wild bee, and possibly those of the common British species, *Pemphredon lugubris*. The habits of the parent insect is to burrow into decaying wood and in Bramble stems, &c., where she forms little chambers or cells; in each of these she lays a single egg, and provisions it with plant-lice as food for the future grub. The Aphides are collected together into a ball and carried to the nest; and when a sufficient number has been collected the cell is closed and another is formed until the habitat is completely filled. If you examine the dark and rather loose material which forms a thick, wad-like barrier between some of the cells you will find that it is composed entirely of the remains of plant-lice, and here and there an almost perfect example may be detected. These insects are not known to be injurious, but may be considered as beneficial. If, however, you are desirous of preventing them making their nests in the Rose stems, you should cover the cut ends of the larger branches or stems with some form of grafting wax, taking care to push it well into the pith, as you will see that this is the point of entry.

SUCCULENTS: *R. P.* Apply to Messrs. H. Cannell & Sons, Swanley, Kent, or Mr. Franz de Laet, Contich, Belgium.

THE DOUGLAS FIR: *W. P. K.* We are not able to give a name to the varieties you send. Both appear to be like the Vancouver or Oregon forms, which for climatal reasons are best adapted to this country. From one bag of seed you may obtain many varieties. The tree has a very wide range from the moist temperate coast regions of north-western America, through the Rocky Mountains to Colorado, and even as far south as the arid regions of southern California and Mexico. It grows at the sea-level up to 10,000 feet in Colorado, and is at its best in Oregon and southern British Columbia. The species thus shows wonderful powers of adaptation. One closely allied if not identical species has lately been found in Japan. In buying seed you should, if possible, ascertain in which region it was collected. As an illustration of the extreme variability of this tree, it may be mentioned that Sargent found in Montana at a height of 6,000 feet, a plant of the Douglas Fir only 18 inches in height, but covered with cones of full average size.

VIOLETS DISEASED: *W. B.* The plants are affected with a fungoid disease. Burn the diseased plants and start afresh, selecting a fresh site for the bed and healthy stock procured from a distance.

COMMUNICATIONS RECEIVED.—*E. B.* (Apples next week: the shilling has been placed in the R.G.O.F. box.)—*F. J. G.* (next week; thanks for 2s. for R.G.O.F. box.)—*C. W.* (we quite understand)—*G. P.*—*J. R.*—*J. A.*—*Voss*, Berlin—*C. W. T.*—*J. R. B.*—*D. T.*—*J. G. P.*—*C. A.*—*F. L.*—*F. P. G.*—*D. H.*—*C. E.*—*S. J. B.*—*W. D.*—*H. J. C.*—*H. R.*—*S. C. T.*—*W. B.*—*R. P. B.*—*H. W.*—*W. H. C.*—*H. M.*—*F. W. T.*—*J. M.*—*W. J. S.*—*J. S.*



THE Gardeners' Chronicle

No. 1,049.—SATURDAY, February 2, 1907.

CONTENTS.

Acacia from the South of France ...	74	Orchid notes and gleanings—	
Algae, Mr. Holmes' collection of ...	73	Cypripedium Morganian x ...	66
Benevolent Institution, Gardeners' Royal ...	72, 78	C. Mrs. Sutton Willoboughy ...	66
Books, notices of—		Lycaste Skinneri ...	66
Chrysanthemums, and How to Grow them for Exhibition ...	78	Plant growth and artificial light ...	78
Flore de France ...	69	Plants injured by pheasants ...	77
Carnation calyxes splitting ...	78	Plants, new or noteworthy—	
Carrots, winter and spring ...	66	Plagiospermum sinense ...	65
Concert to aid charities	73	Primula x Kewensis ...	77
Discounts to gardeners	79	Propagator, the ...	75
Florida garden in November and December	68	Rambles on the Riviera	69
Forestry—		Raspberries & Brambles	77
Douglas Fir, the ...	74	Research ...	73
Forestry at Oxford ...	74	Rudbeckia, a red flowered ...	73
Frost in Cornwall ...	77	Societies—	
Fruit-pests in the Evesham district ...	74	Linnean ...	78
Fruit register—		Royal Horticultural (Scientific Committee) ...	77
Cherry Early Rivers ...	67	National Potato ...	77, 78
Late Pears ...	67	Tree, an old ...	78
Gardeners, British, in the United States ...	68	Vegetables at Shewsbury, large prizes for	74
Hydrangeas, blue ...	73	Vienna, horticulture at	74
Jamaica, and its future	65	Week's work, the—	
Law note ...	78	Flower garden, the ...	70
Mannheim exhibition ...	74	Fruits under glass ...	69
Nursery, fire at a ...	73	Hardy fruit garden ...	70
Obituary—		Kitchen garden, the ...	69
Broome, Joseph ...	79	Orchid houses, the ...	71
Foster, Sir Michael ...	78	Parks and gardens ...	70
Odontoglossums, two new ...	76	Plants under glass ...	71

ILLUSTRATIONS.

Cypripedium Morganian x, a fine plant of ...	66
Eucharis grandiflora grown by Mr. J. G. Weston ...	71
Flower-bed planted with succulent plants ...	67
Foster, Sir Michael, the late ...	78
Maybug or Cockchafer, and larva ...	80
Odontoglossums Ruby and caloglossum ...	76
Orchids, a house of seedling ...	75
Residence of the late Sir Michael Foster ...	79
Rudbeckia Heliopsis, a variety with red-coloured florets (Supplementary Illustration).	

JAMAICA AND ITS FUTURE.

THE terrible calamity that has befallen Jamaica will tend to draw increased attention to the agricultural capabilities of that island. Though the information that has come through at the time of writing regarding the safety or otherwise of civilian staffs is very meagre, incidental statements in the daily Press would indicate that most of the officers are safe. An extract from a letter in the *Daily Telegraph* from the *New York Times* says that the leading members of the West Indian Commission, headed by Sir A. Swettenham and Sir Daniel Morris, "opened an Imperial Conference, at which the whole trade of the island would have been reviewed, including the sugar, rum, banana, coffee, and cocoa outputs, and a new starch made from Cassava, from which great results are expected. But over and above all these was the idea of Sir Alfred Jones, as president of the Cotton Growers' Association, of re-establishing cotton-plantations in Jamaica, and thus providing the Lancashire market with an ever-increasing supply of sea island cotton." For the moment these expectations would

appear to be deferred; but it is not safe to hazard any conjectures until more details are received. In the meantime, however, we may refer to some facts bearing on the prospects of the successful cultivation of such economic plants as those mentioned above, and which are recorded in the most recent official reports, copies of which reached the writer from Jamaica only a few days before the earthquake.

With regard to the sugar-cane, it is stated that 8 acres and 23 perches were devoted to experimental culture. Some of the varieties had been condemned and destroyed, and the land, after being prepared, was planted with other varieties and selected seedlings. The Demerara seedlings have been propagated and planted to the fullest extent. The method of sending out cane tops in perforated barrels was abandoned, and they were distributed in bags with success, and an appreciable saving was effected in the cost of packages and of freight, so that a much larger number was distributed than was thought possible at the beginning of the season, the total number of tops and cuttings sent out being 113,089.

The genuineness or purity of much of the so-called Jamaica rum sold in the United Kingdom has attracted some attention of late. In Jamaica it is reported to have occupied a prominent place in the investigations of the island-chemist, who has been busily engaged studying the micro-organisms present in distillery materials, and the conditions for the economic production of the flavouring materials upon which the quality of Jamaica rum depends. A means of increasing the flavouring power of rums by utilising waste materials has been devised, and at the request of the two Planters' Associations is being patented in the chief rum-producing countries. All rights in the patents have been assigned to the Government for the benefit of the sugar-experiment station. The commercial results of the enterprise have still to be ascertained, but it has been shown that the process is practicable, and can be operated without expert assistance. The results obtained in the experimental distillery indicate that many estates are losing at least 25 per cent. of their produce, and it is clear that great economies could be effected by a more adequate understanding of the conditions affecting the yield and quality of rum as made in Jamaica. The work of the fermentation-chemist is rapidly bringing the problems of flavour production within closer knowledge, and the further prosecution of this investigation should prove of great service to the industry. One result of these researches is stated to have raised the value of the rum from 3s. 6d. to 7s. 6d. per gallon.

In the matter of coffee, planters in Jamaica have been advised to extend the area of its cultivation in consequence of its increased consumption and decreasing production. The report says: "Coffee planted now cannot come in for four or five years, but by that time the increased consumption which has been promoted by the long prevalence of low prices, added to the possible, if not probable, diminution of supplies from South America, may combine to make the crop once more a very profitable one. At any rate it is not likely to be under greater disadvantage than

at present, and it is not subject to great loss by hurricanes." As an illustration of the increasing trade in coffee with Jamaica, the total exports in 1904-5, ending March 31, amounted to 50,724 cwts., against 83,920 cwts. in 1905-6, 9,749 cwts. reaching the United Kingdom in the former year and 12,085 cwts. in the latter. And again with cocoa, the total exports in the former year were 22,237 cwts., and in the latter 32,587 cwts., the quantity sent to the United Kingdom last year being rather more than double that of the preceding year.

With regard to Cassava starch, "it has been shown that the plant can be grown without irrigation in the plain of Liguanea, in Jamaica, to give a yield of starch greater than has ever been recorded of any starch-producing plant. It gives this large yield upon a soil and with a rainfall that would not give good crops of sugar cane without irrigation; and large areas of land at present producing little or nothing could be profitably used for the growth of Cassava for starch-manufacture. Already 16,641 cuttings have been distributed to growers in various parts of the island, and the demand has been so great that a few stock-plots have been established to supply cuttings only.

Jamaica cigars have already appeared more than once at the exhibitions of Colonial produce at the Royal Horticultural Society and at the Crystal Palace, and have been reported as of excellent, though not always of uniform quality. It has been, however, stated "that with larger stocks of tobacco which will be formed as the trade increases, and when a larger acreage has been put under cultivation, the quality will gradually become uniform."

It is sad to be obliged to think that these improved prospects in the future of Jamaica which were officially put forth only a few weeks back are likely at any moment to be officially reversed. *John R. Jackson, Claremont, Lymington, Devon.*

NEW OR NOTEWORTHY PLANTS.

PLAGIOSPERMUM SINENSE.*

THIS is a shrub from North China belonging to the family Celastraceæ, or, as seems more probable, to the Rosaceæ. It was originally described by Oliver, as cited in the footnote, but it has not as yet made its appearance in garden-catalogues so far as we can tell. Our specimen was kindly forwarded by Mr. Smith, of Newry, whose nurseries are remarkable as the home of many new and interesting plants. The shrub has slender, spiny branches, covered with a smooth, greyish bark, which reminds one of that of *Lycium sinense* in general appearance, though, of course, the plant is widely different in floral characteristics, being more like those of a *Cotoneaster*, except in the ovary. Leaves tufted, glabrous, linear, lanceolate or oblanceolate, tapering to a short stalk, and surrounding a short, straight axillary spine. Each leaf is about 1 inch long, $\frac{1}{4}$ inch broad (3 cm. by 6 to 7 mm.). Stipules small, deciduous, brown, covered with reddish hairs. The flowers are about 12 millimetres wide, with a vase-shaped calyx, with five lobes and five yellow petals springing from the

**PLAGIOSPERMUM SINENSE*, Oliver, in Hooker *Icon. Plant.*, vol. vi. (1886), tab. 1526. Forbes and Hemsley Enumeration, *Journ. Linn. Soc.*, xxxvi. (1906), p. 502.

throat. The stamens are 10, the ovary solitary oblique, at the bottom of the flower-tube, with a short style and two ovules. The principal difference between the specimen submitted to us and that described by Oliver is that in our specimen the flowers are all but sessile, whilst in Oliver's description, as in his figure, the flowers are raised on pedicels, 10 to 15 millimetres long. We have not seen the fruit. From its habitat in North China and near Mukden, it may be considered hardy in this country, and flowering at this season it is welcome. *M. T. M.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM MORGANÆ ×.

In our issue for August 21, 1886, we reproduced a full-page illustration of this hybrid *Cypridium*, the result of *C. superbiens* × *C. Stonei*. Fig. 29 shows a plant that was exhibited at a recent meeting of the Scottish Horticultural Association by Mr. George Wood, gardener to James Buchanan, Esq., Oswald House, Oswald Road, Edinburgh, a photograph of which was sent us by Mr. A. D. Richardson. The broad petals, which much resemble those of *C. Stonei platytenium*, are white, slightly tinged with sulphur colour, and profusely blotched with purplish brown. The dorsal sepal is white, tinged with red, and the li white, tinged and veined with rose colour. The foliage is broad and very slightly tessellate.

CYPRIPEDIUM MRS. SUTTON WILLOUGHBY (CHARLESWORTHII × CHAMBERLAINIANUM).

AN inflorescence and a leaf of a very delicately-tinted hybrid of the above parentage is sent by Sir Charles W. Strickland, Bart., Hildenley, Malton, Yorks. (gr. Mr. W. Smith). The leaf is broad and dark green; the flower stalk purple and downy, and giving evidence of producing several flowers in succession. The ovary is sheathed by a broad, green, purple-spotted bract. The flower has the dorsal sepal circular in form, reddish rose on the lower two-thirds, and white with a slight green tint showing from the back, on the upper third. The horizontally-extended petals are tinged and veined with purple; and the lip light rose with a yellow upper margin. The staminode is light purple with a yellow-raised centre. The lower sepals are pale green.

LYCASTE SKINNERI.

FROM the Royal Botanic Gardens, Glasnevin, Dublin, Mr. F. W. Moore, the Curator, sends a three-flowered inflorescence of a large and remarkably fine form of *Lycaste Skinneri*, all the blooms being well developed and fully open, the upper part having the appearance of a raceme with the flowers all facing the same way. Mr. Moore remarks of the plant: "This particular variety always has twin-flowers, and each year one or two of the stalks has three." The character seems to be fixed in this variety, and on removing the bract at the base of the third flower a rudimentary bud is revealed, showing that a fourth flower is possible. It is a pretty, light-coloured variety, with remarkably broad sepals and petals. *J. O'B.*

VEGETABLES.

WINTER AND SPRING CARROTS.

MANY persons prefer a small or medium-sized Carrot at all seasons of the year, and there is no reason why young, fresh roots should not be obtainable at all times. Of late years I have found it a much better plan to sow half a dozen times from February to August, instead of one or two large sowings in the early spring. Of course, I am only writing from a private grower's view, and I know that a market grower must have size in his roots, also that young Carrots soon shrivel, and when long out of the ground do not keep in a pre-

sentable condition, but in the case of a private garden I strongly advise their being sown at intervals, harvesting them when still young. Some persons may object to this mode of culture, and may think that more seed is required, but such is not the case, as frequently the seeds are sown too thickly, and much labour is entailed in thinning the seedlings and in keeping the rows clean. There may also be the objection that in some exposed gardens the young roots would not winter in their growing quarters, but in this I have found no difficulty; indeed, the Carrot is quite hardy. I admit the tops suffer a little in severe weather, but not so the roots, and it is an easy matter to lift some and to store

heavy clay soil this mode of culture may be found somewhat difficult of success, but the difficulty may be overcome by preparing a small piece of land, and dressing it liberally with such materials as wood ashes, road scrapings from limestone roads, old mortar rubble, or old potting soil of any kind. I should add, that for winter supply it is well to change the quarter, if possible, each season. It is also necessary to dress the land thoroughly before sowing the winter supply with soot and lime to destroy insect pests which attack these plants. Soot and lime used freely will also furnish the plants with food, and be better for this purpose than fresh animal manures. In poor land I



FIG. 29.—A WELL-GROWN PLANT OF CYPRIPEDIUM MORGANÆ ×.

them in sand, or, better, to cover some with litter or Bracken for use during severe weather. The best kinds for early sowing are Early Nantes and Early Scarlet Horn. For May and June such kinds as Sutton's Early Gem or Veitch's Scarlet Model. These two last-named are excellent varieties, and are equally good for later sowings, but for the latest supply, that is from January to May, I prefer the smaller roots advised for the earliest or February sowing, as these stand the winter well, and their roots are quite large enough for most purposes. For the earliest crop, warm sheltered borders are advisable, but for the other sowings an open quarter is the most suitable position, as it is best to grow the plants as hardy as is possible. In

have used Guano, when preparing the soil, with good results. In some gardens there is a difficulty in producing Carrots free from disease, and in such cases I advise a trial on the plan described above. *G. Wythes.*

PLANT PORTRAITS.

- ECHINOPSIS MEYERI (Heede).—*Garten Flora*, t. 1, 558. Paraguay.
 ECHINOCACTUS SCOPA (Link et Otto).—*Garten Flora*, January 1, p. 20, f. 5.
 CATTLEYA MOSSIÆ, ALBO-SULPHUREA.—*Tribune Horticole*, January 5, 1907.
 MOREA BICOLOR.—*Revue de l'Horticulture Belge*,—January 15.
 SOLANUM JASMINOIDES.—*Revue Horticole*, January 16.
 ASTILBE DAVIDII (flowers rosy lilac).—See *Bot. Mag.*, tab. 7, 890; *Gard. Chron.*, August 9, 1903, p. 108.

FRUIT REGISTER.

LATE PEARS.

With regard to Mr. Markham's remarks on p. 37 on late dessert Pears, I may say that with *me* Bergamotte d'Esperen is a first-rate late Pear, and by growing it on walls of different aspects, and occasionally placing a few fruits according to the demand in a higher temperature than that of the fruit room, ripe fruits may be had from January until April. The flavour is very good.

Forelle is an excellent variety, and, ripening at about Christmas time, its handsome appearance adds to its value. I find it succeeds best on a west wall, and if the roots are afforded plenty of water and stimulants during the growing season, the fruit attains a good size, otherwise it is rather small.

facing to the south, the fruits will not always ripen sufficiently for dessert. There are some double-grafted trees of this variety growing in these gardens, which produce large, sweet fruits of agreeable flavour. I shall not discontinue growing it yet. Among the varieties Mr. Markham says he is planting this season is *Le Lectier*. I planted this variety here five years ago, and it has succeeded very well. It is a vigorous grower, a good bearer, producing fruits of large size, has melting flesh, and is rich in flavour.

During the last six years I have planted a good many Pear trees against walls in these gardens, which, with few exceptions, have done very well. It is in reference to these exceptions that I wish to make enquiry. They are horizontally-trained, and growing on the Pear stock. Up to the middle of June last year, they grew

depth, 4 feet in width, and 6 feet long, and plenty of drainage provided. I am quite sure there is no stagnant moisture in the soil. Will some of our fruit-growers please give their opinion on the matter?

Mr. Markham says it would be interesting if growers would record their experience as to the best varieties of Pears for keeping up a good supply during the first three months in the year. When one considers that the quality of Pears is greatly influenced by soils and sites, it makes the task of giving a selection more difficult. However, so far as these gardens are concerned, I plump for the following:—*Le Lectier*, *Nouvelle Fulvie*, *Olivier de Serres*, *Josephine de Malines*, and *Duchesse de Bordeaux*. *W. J. Snell, Gardener to Lord Clifden, Wimpole Hall, Royston.*



FIG. 30.—A BORDER OF "SUCCULENTS" IN THE PUBLIC PARK AT GREENWICH.

(See also illustration in last week's issue.)

My experience with *Beurré Rance* as a dessert Pear is similar to Mr. Markham's, but I find the fruits useful for kitchen purposes. *J. Murray, Sopley.*

Mr. H. MARKHAM (see p. 37) speaks highly of the variety *Nouvelle Fulvie*. I can endorse all he says of this grand variety, having grown it here for six years. The tree is hardy and grows well, is a good bearer, and the fruits are of large size, juicy, and possess rich flavour. *Passé Crasanne* growing against a south wall here is not satisfactory. I consider it is a very poor doer, as, in spite of mulching, watering, and feeding, it makes only a small amount of growth. It bears well, and the fruits are of splendid quality and flavour. My experience with *Beurré Rance* is that unless it is grown on a wall

as well as could be desired, and then, without any apparent reason, the leaves became pale and thin (showing, I believe, an absence of chlorophyll), and the points of the shoots—more especially the extension shoots—gradually turned brown and died back to within a few eyes of the point at which they were pruned in the previous year. Knowing, as I do, the conditions under which they were planted, it is difficult for me to assign any reason for the trees behaving in this way. Perhaps I ought to explain that they were planted in equal parts of turfy loam, and the top spit from the kitchen garden, the latter being rich in humus, to which were added some burnt earth and old mortar rubble. There are plenty of surface roots. Holes were made to the extent of 3 feet in

EARLY RIVERS CHERRY.

This variety is a valuable addition to dessert Cherries, and is also an excellent variety for market purposes, as its fruits ripen early, thus ensuring good prices. The tree is of robust growth, and is a prolific and constant bearer, scarcely ever missing a season without cropping. It is suitable for pot culture, and for training against walls. The growths have a somewhat pendulous habit, and for that reason standard trees should be pruned hard back for several seasons. The fruits are of a deep black colour, large, very juicy and of excellent flavour. They ripen out of doors during July, and very early in June under glass. They are capable of hanging for a considerable time when ripe. *T. W. Birkinshaw.*

BLUE HYDRANGEAS.

HAS the real cause of some Hydrangeas producing blue flowers ever been satisfactorily cleared up? Various theories have been propounded, the iron filings of our German friends (quoted in vol. XL on p. 443) among them. That they may have been able to produce blue flowers by growing the plants in soil impregnated with iron and watered with alum water is quite possible. But does this treatment always succeed, and do Hydrangeas produce blue flowers without iron? To this latter query I say most decidedly yes. I enclose herewith a photograph of a Hydrangea growing in front of a cottage in central Essex. The photograph was taken in August, 1905, and the plant was a mass of bloom. But here was a riddle: the plant bore both blue and pink flowers, intermixed all over the bush in all stages of development. I closely questioned the tenant of the cottage, and found that this was the usual habit of the plant. But now comes riddle No. 2. In the adjoining garden is a smaller plant, an offset from plant No. 1; it was in full bloom, and showed the extra vigour of a younger plant. The trusses of bloom, too, were much finer, but they were all pink. Now what have we at work here, and where does the iron tonic come in? How is it that one truss of bloom gets it and another does not, and why has plant No. 2 reverted entirely to the pink habit when only a few feet divide the two plants? The original plant and I are old friends. I admired it in days gone by, long before the colour theory interested me? I traced its history for much more than over half a century, at the time that I took the photograph. The aspect is about south-west, and the plant seems to receive no attention whatever beyond an occasional cutting back to keep it within bounds, and the surrounding ground is simply a grass plot. I was completely puzzled at the time. All the theories hitherto advanced were wrong, as far as I could judge, for here was a plant that set them all at defiance. Perhaps some of your readers can solve the problem.

James Brown, Alexandra Park, Glasgow, N.B.

[The photograph is unsuitable for reproduction. Is it known whether the colouring matter of this plant is solid or liquid?—ED.]

NOVEMBER AND DECEMBER IN MY FLORIDA GARDEN.

(Continued from page 45.)

SHRUBS.

As a rule, the evergreen Japanese shrubs, if well cultivated and manured, thrive wonderfully well in our poor sandy soil. Some species, however, defied all my attention and care. *Damianthus indicus*, *Aralia chinensis* (A. japonica), and others soon died; while *Photinia serrulata*, *Osmanthus aquifolium*, *Michelia compressa*, and most of the deciduous Magnolias—which, however, flower profusely in November and December—have a straggling, thin growth. *Ilex latifolia*, *Othra japonica*, and *Viburnum odoratissimum* grow moderately well; while *Gardenia florida*, *Michelia fuscata*, *Raphiolepis indica*, *Pittosporum tobira*, *Cleyera japonica*, *Ternstroemia japonica*, *Illicium anisatum*, *Cinnamomum camphora*, *Cinnamomum cassia*, *Aralia papyrifera*, *Hydrangea Hortensis*, and several of the evergreen Oaks belong to the most exquisite decorative evergreens of my garden. Among those in full bloom in November and December *Daphne indica* must be mentioned first. It is a shade-loving shrub of slow growth, but the perfume exhaled by the densely-packed flat flower corymbs is so strong, so delicious and aromatic that it should find a place in all collections where choice evergreen shrubs are desired.

CAMELLIAS.

The queen among autumn-flowering Japanese evergreen shrubs is undoubtedly the Camellia, or the "Japonica," as it is called by most people in the south. It grows to perfec-

tion in Florida. Among the many garden forms of *Camellia japonica* in my collection, the first to flower is the common double white, which opens its first buds early in November. At Christmas many of the varieties are "in all their glory," and the sight of these noble and refined flowers against a background of *Magnolia grandiflora*, huge bushes of *Michelia fuscata* and Palms never fades from memory. At this time *Camellia sasanqua* is still more showy, and the bushes are a sheet of colour, which is never the case with the former. The foliage can scarcely be seen beneath the blossoms. The double forms are as floriferous as the single ones, and they are just as beautiful as the best varieties of *C. japonica*, though much smaller. The single rose-coloured form reminds one strongly of some of our wild Roses. The foliage of this species is small, deep green, and very glossy. The flowers have been described as fragrant, but I find the odour somewhat musty.

ELÆAGNUS.

The different species of silver shrubs or Oleasters are veritable jewels among Japanese evergreens, particularly *Elæagnus reflexa*, which, by means of blunt, spine-like, hooked or reflexed branches, scrambles high into the Oaks, forming grand masses of tangled green. It is a pleasure to walk underneath this canopy of dense, dark green foliage, particularly when the whole mass is in flower, or when the berries are ripe. In October and November the small, inconspicuous, greyish-white flowers appear in incredible numbers, filling the air with a most delicious and peculiar clove-like perfume. The plants swarm with insects during their blooming time. This is the most rampant grower of all the species, and it attains a height of about 30 feet. The annual greyish-brown shoots are in the first year devoid of foliage, but they are provided with reflexed hooks. They are sometimes 20 to 25 feet in length, and they climb in all directions. *Elæagnus Simoni* is of still denser growth, but it is not such a strong grower as the last named, although the foliage is larger and more glossy. It forms masses of tangled growth of a rounded form, 15 feet in height, and from 10 to 20 feet in diameter. It blooms most abundantly in November, the fragrance of the flowers being quite strong and similar to that of the former species. The elongated, orange-red berries are covered with brown dots, and they are produced in such abundance that all the branches are densely covered with them. They are very juicy, and can be used for the same purposes as currants. The first fruits ripen early in January, and the fruiting season is prolonged until the middle of March. This species is also provided with blunt hooks, which enable the shoots to form a dense mass of inextricable growth. The most valuable and beautiful of all the silver bushes is *Elæagnus macrophylla*. The foliage is large, of a deep glossy green shade, and, as in the other species, with a beautiful silvery-white under surface. The growth is delicate, but very dense, and wherever seen, a well-grown specimen of this noble species has a very elegant appearance. It finally assumes large proportions, fully-developed bushes being 6 to 10 feet in height, and as much in diameter. It flowers profusely at this season, and pervades the air with a delicate Carnation-like odour. One flower is scarcely noticeable, but masses of them produce a delicious fragrance. The colour of the small flowers is dull white, and the fruit is shaded a light greyish white. Variegated forms of this plant are very pretty and grow equally as well as the green-leaved kinds, but they are dwarfer in habit and need a little more attention. *E. pungens Frederici variegata*, *E. pungens maculata*, and *E. Simonii tricolor* are all very beautiful subjects, partly provided with golden-yellow and partly with white variegated foliage. All the Oleasters simply revel in the driest, sandy soil, and in the fullest sunshine. They will not thrive in moist spots or on heavy ground. On account of their density they form favourite nesting sites for Cardinal Red birds, mocking birds, ground doves, and brown thrashers.

Another very sweet-scented Japanese shrub now in full bloom is the Sweet Olive (*Osmanthus fragrans*), a very deliciously perfumed plant, but a very poor and straggling grower, and one that will not succeed on high lime land. A specimen planted with several *Michelia fuscata* about 10 years ago has only grown about a foot high, while the

Michelias have reached a height of more than 8 or 10 feet.

Cycads are expensive plants, and for this reason I have not been able to plant them on a large scale, except *Cycas revoluta* and our native *Zamia floridana* and *Z. pumila*. The first named is now in fruit, the large seeds being covered with a bright orange-scarlet coloured material. These plants grow freely, and form glorious companions to our Palms, Magnolias and other evergreens. Our native *Zamias* are very showy objects when in fruit, large clumps producing numerous deep-brownish cones, which show their bright coral-red seeds to much advantage. *Zamia mexicana* grow finely here, and *Z. furfuracea* rivals it only in elegance, but not in size. *Cycas siamensis* and *C. circinalis* make a very rapid growth, and are always objects of grace and elegance. I protect the crowns of these four last-named Cycads by bunches of Spanish Moss, or by banking them with dry sand. In very cold weather they lose their foliage, but they always renew it in the following season. *Dioon edule* is as hardy as the common Cycas. I have a fine large specimen about 60 years old, with a magnificent crown of foliage.

Speaking of ornamental fruits, the glowing red berries of the Holly (*Ilex opaca*), of the Dahoon (*I. cassine*), and the coral Smilax (*Smilax Walteri*), all natives, add beauty and variety to our gardens. Another Smilax (*S. Beyrichii*), with very fragrant flowers, is in spring covered with its blue-black berries. In the woods this forms a fine climber, but in gardens it spreads very much, and its disposition to climb over the choicest trees and shrubs is scarcely controllable. The immense clusters of black berries, each the size of a small pea, hanging from among the leaf-crowns of the Palmettos (*Sabal Palmetto*, *S. Blackburniana*, and *S. mauritiiformis*) are very prominent. The native Wild Olive (*Osmanthus americanus*), a fine, broad-leaved evergreen ornamental tree of low dense growth, provided with branches from the ground up, is adorned with numerous bluish-black fruits, the size and shape of an Olive. The Wax Myrtle (*Myrica cerifera*) is also in fruit. The bluish-white berries growing densely along the branches are thickly covered with a powdery, wax-like substance, which was formerly extensively used in the manufacture of candles. The large rounded bushes, never more than about 15 feet high and often 7 feet in diameter, are of a dense habit, and the abundant, small, deep-green foliage has a decided brownish cast. This species is one of our finest ornamental evergreens, and the foliage has the additional charm of possessing a fine aroma. These Wax Myrtles are swarming with Myrtle Warblers (*Dendroica coronata*) and kindred species—northern migrants and winter sojourners—which are extremely fond of the berries. Of the exotic tropical shrubs, only the Golden Dewdrop (*Duranta Plumieri*), a half-climbing, thorny plant, is in fruit, the abundant golden-yellow berries being very ornamental.

PALMS.

Palms in the open air are always a revelation to me. There is nothing more enchanting, more imposing, more noble than well-developed specimens of Palms in our Florida gardens. They are the veritable "princes of the vegetable kingdom," but they are capricious in their requirements, and need a good deal of attention, and their development, even under the most favourable conditions, is extremely slow. Only a very limited number thrive here, and our gardens are, in regard to variety, much poorer than those of California or the Riviera. This deficiency in species is mostly due to our poor sandy soil, and to our occasional cold weather. *Washingtonia filifera*, the California Fan Palm, grows well in the flat woods, where the clay is near to the surface. The beautiful *Erythra armata* and *E. edulis*, both from California, dislike the humidity of our atmosphere, as well as the sandy soil. All the Australian species are a failure, for they are not able to stand our mid-summer's sun or our winter's cold. *Jubæa spectabilis*, from Chili, remains healthy for many years, but it scarcely makes any progress in its growth. *Livistona sinensis* and *L. australis* grow well in rich, moist soil in shady positions. All the Palms that thrive here are at their best late in the fall of the year, after they have finished their annual growth, forming in com-

pany with Bamboos a magnificent sight wherever they have been planted. *Trachycarpus excelsus*, *Chamærops humilis*, and *Acrocomia Totai* grow freely in rich soil. My specimens, about a dozen years old, are very fine. Among all the Palms, however, the different species of *Cocos* are the most elegant, graceful and conspicuous; while such species as *Cocos australis*, *C. Datil*, *C. eriospatha*, *C. Romanzoffiana*, and an unnamed species from Entre Rios, in Argentina—the stateliest and most massive of all—ripen their fruit in midsummer. Other species, like *C. Blumenavia*, *C. Gærtneri*, *C. Bonneti*, *C. Yatai*, &c., are constantly bursting their massive club-like flower spathes, and ripen their strangely aromatic fruit continually. Spores of Ferns have found their way to the spaces between the old leaf-stalks and the trunk, with the result that beautiful clumps of *Polypodium aureum* and *P. incanum* are decorating these Palm-trunks in a most charming manner. Some fine specimens of *Cereus grandiflora*, *C. nycticalus*, *C. Martini*, *C. Bonplandii*, and *C. triangularis* clamber up into the crowns, whilst masses of *Phyllocactus crenatus* are quite a feature along the massive trunks. The fruit, which varies in size from that of a Pea or a Grape to that of a Plum, reminds one in its fragrance of the Pineapple. It is greatly relished by children, and the chickens fly up in the crowns and eagerly feed on it. Quite as successful and much more massive in growth are such Date Palms as *Phoenix canariensis*, *P. sylvestris*, and a hybrid between the two. In rich soil these plants reach an enormous size in the course of a dozen years, and form trunks as thick as water-barrels. They bloom in November and December. The common Date (*P. dactylifera*) also flowers at this time of the year, but it is far inferior to the three above named, its foliage being scant and stiff, and its growth disappointingly slow. *P. rupicola* and *P. reclinata* form slender trunks, with glorious crowns of foliage, while *P. spinosa* and *P. senegalensis* form dense, many-stemmed thickets of great beauty. This latter class of Date Palms is in fruit just now. The bunches of fruits, which are rather small and smooth, are quite showy, being displayed on bright yellow, paniced stems. The fruit itself is of a dull brownish colour. All the Sabals do well here, and all are now in full fruit. *Sabal mauritiformis* from Jamaica and Trinidad is the most imposing species, but the bluish-green *S. Blackburniana* from Bermuda, *S. mexicana* from Mexico, and our indigenous *S. Palmetto* are scarcely less majestic. Large groups of the latter form glorious pictures in many gardens, and they are still more glorious along the St. Johns, the Ocklawaha, the Tomoka, and other Florida rivers, where they form ideal sceneries of wild-wood, plant life. The dwarf *Palmetto* (*Serenoa serrulata*) grows in big clumps everywhere in the woods. It flowers in spring and ripens its juicy, unpleasantly-sweet, yellowish-brown fruits late in the fall. *Rhapidophyllum hystrix*, the Blue *Palmetto*, at present in flower, is one of our most beautiful native dwarf Palms.

From the flower-embowered verandah we see the silvery water of Lake Audubon gleam through vistas of Magnolias, Palmettos, Bamboos, Wax Myrtles, and Laurel-Cherries (*Prunus carolinensis*). Around the lake the soil consists of alluvium and rich vegetable mould, exhibiting the most exuberant fertility after it has been thoroughly worked for several years, or until its sourness has been neutralised. In this moist black soil, *Crinums* grow to a gigantic size, and *Cannas* can only be grown successfully here, though the common *Canna* caterpillar, evidently confined to Florida, does much harm. This is the right kind of soil for the *Scitamineæ*, while the different species of *Curcuma*, *Kæmpferia*, *Maranta*, *Musa*, *Strelitzia*, *Heliconia Bihai*, *Ellettaria Cardamomum*, and many others may be arranged in strikingly beautiful beds. *Alpinia nutans* assumes in this rich soil gigantic proportions, growing 10 feet high, and consisting of hundreds of shoots, which furnish gorgeous flower-spikes the following year. The flowers are very fragrant, very characteristic, very elegant, and brilliantly-coloured, being orange, yellow, and white. The foliage also is very fine and strongly aromatic. This is one of the most precious tropical ornaments of our gardens. It blooms most profusely in October and November. Its congener, *Alpinia mutica*, commonly known here as the Ginger

plant, has very showy white flowers, with a large, bright yellow lip, veined with crimson.

The Butterfly Lily (*Hedychium coronarium*), with intensely fragrant, pure white flowers, and the Garland Flower (*H. Gardnerianum*), with large spikes of yellow and red blossoms, and the sulphur-yellow *H. flavum* attain a very large size in this moist spot. They grow from 4 to 8 feet high, and form large clumps in a single season. They are late bloomers, and are at their best by the beginning of November. The showy *Musa coccinea*, never growing taller than 5 or 6 feet, forms a very fine companion plant to the above-named species. It is scarcely ever out of flower, and is always conspicuous. The larger-growing Bananas, particularly the Cavendish, Hart's Choice, and the Orinoco, grow most vigorously near the lake, and produce ripe fruit in abundance if the stalks have not been cut down by frost during the preceding winter. *H. Nehrling*, Florida.

(To be continued.)

NOTICES OF BOOKS.

FLORE DE FRANCE.

THE last part, completing the third volume of this work, has been issued. It has occupied six years in preparation, and is the work of a provincial abbé in a rather remote district of France. The Abbé Coste has endeavoured to produce a book which shall be as serviceable as the well-known *Flora* of Grenier and Godron (1856), now superseded. A description and figure of the species to the number of 4,354 are given, with indications of localities and general distribution. As many of the species are common in western Europe generally, and many Mediterranean and Alpine species are in cultivation, this book will be an acceptable addition to the library of the plant-lover. It will remind the reader of the illustrated edition of *Bentham's Handbook*, but is, of course, on a larger scale. It has a full index. The publisher is M. Klincksieck, 3, Rue Corneille, Paris.

RAMBLES ON THE RIVIERA.

WE are frequently asked to recommend a book which, without being too technical, is sufficiently accurate to enable visitors to the lovely shores of the Mediterranean to name the plants they are likely to meet with, and to make them acquainted with the many points of interest they present. Just such a book is Dr. Strasburger's *Rambles on the Riviera*.* The eminent Professor of Bonn has made numerous visits to Liguria, and has explored the country from the Gulf of Genoa to Cannes and Nice. He is charmed with all he sees, and his enthusiasm will infect the reader. A better companion than Prof. Strasburger cannot be found. He enjoys everything, and while there is not much that he does not know, he never obtrudes his knowledge. No one, reading this delightful book, would imagine that it was written by one of the foremost investigators into certain very abstruse departments of botany of extreme importance, but hardly to be comprehended by the profane. He chats pleasantly about any or everything that turns up in his rambles, and proves himself a charming companion. An account is given of Sir Thomas Hanbury's garden at La Mortola—and the volume is dedicated to that generous protector of the sciences. The book is well printed on art paper, and is copiously illustrated with coloured illustrations of the most noteworthy plants. These illustrations are from drawings by Miss Louise Reusch, and are very faithful, but they are scattered through the volume, so that they are often placed, of necessity, away from the text that relates to them. Moreover, they are let in to the type, so that there is much and sometimes troublesome "overrunning." These flaws, if flaws they be, do not materially detract from the value of the work, particularly as on p. xix. is an alphabetical list of all plants figured with references to the pages on which they occur. The changes that have taken place of late years on the Riviera have not all been for the better, and the advent of motor-cars has detracted sadly from the pleasure of the visitor, and even endangers his life. Yet, even on the French Riviera, there are plenty of places where, "without let or hindrance, one may devote one-

* Translated from the German by O. and R. Comerford Casey. Coloured plates, p. 444. London: T. Fisher Unwin.

self with earnestness to the ennobling study of nature." Many parts of the Riviera are now devoted to the culture of bulbs, Anemones, Roses and other flowers destined for the markets of the great cities of Europe, so that they form one vast flower-garden. Oranges, Lemons, and Olives abound—not the stunted olive bushes one sees in Provence, but gnarled monarchs vying in picturesque effect with our Oaks.

The Palms and Agaves which form such adjuncts to the scenery are not of native origin, but have been introduced. Let those who say we should rely exclusively on native productions make a visit to the extreme eastern Riviera, where few introductions have been made, and they will acknowledge how greatly the picturesque effect has been enhanced by the noble Palms, Agaves and other plants which have been introduced by plant-lovers into the Western Riviera. The book has an excellent table of contents, and a copious index, so that we end as we began by heartily commending it to the visitors to this lovely coast.

The Week's Work.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Allon, Clackmannanshire.

Pines.—The plants that were selected last month for fruiting early will now require a steady bottom heat of 80° to 85°, and the atmospheric temperature of the pit should be kept at about 65° to 75°, rising with sun-heat to 80°. Damp the paths once or twice daily, and admit a little air when the weather is favourable. Examine the pots in the plunged material, and see that the bed is not too hot, as freshly made-up beds with leaves, moss litter, or tan-bark often produce a violent heat, which is dangerous, although a little excitement at the roots at this stage is advisable. Succession plants should be kept in an atmospheric temperature of 60°, and a steady bottom-heat of 65° will be sufficient. Be careful not to over-water the plants, but keep them on the dry side until they are wanted for forming a succession supply. All the young, strong suckers which can now be obtained from plants which have fruited during autumn and winter should be carefully detached from the old stools. Pot them in turfy-loam, using 6-inch pots. Plunge the pots in a bottom-heat of 70°, where they will soon make roots, and should be useful next winter.

Melons.—Seeds should now be sown if ripe fruits will be required in May. Sow the seeds in thumb-pots filled with loam and leaf mould to within 1 inch of the top; place two or three seeds in each pot, and cover the seeds with similar soil. Plunge the pots in a bottom-heat of 75° in a pit. Apply a little tepid water to each, and place panes of glass over them. In a few days the young Melon plants will appear above the surface of the soil, and it will be necessary to remove all but one plant in each pot. As soon as the rough leaves have developed and the plants are sufficiently large to pot on, shift them into 5-inch pots, using turfy-loam and leaf mould, which have been well mixed together and warmed through by keeping in the pit for a few days. Plunge them again, when potted, in the same degree of bottom-heat. Immediately new roots have been made, apply a stake to each plant, and remove the plants to a shelf near to the glass in an atmospheric temperature of 65° at night, and 75° during the day. Admit air daily when the weather is fine, and spray the plants over with tepid water, keeping the house moist by damping the paths daily with water.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Early Peas raised from seeds that were sown in November on warm borders in front of vineries, or in other favourable positions, will have made by this time sufficient growth to require a little soil drawing up to them. Short sticks also should be applied to such varieties as Early Giant, which has so far withstood the winter well in these gardens, and is making fair progress. Dwarfier varieties, such as Sutton's Seedling, Green Gem, and Little Marvel, will not require stakes, but if some Yew or Spruce branches, 2 feet high, are placed at a

distance of about 15 inches from the rows, on the east or most exposed side, they will be found to afford appreciable shelter from both wind and frost, at the same time permitting all the light and sun to reach the plants. As soon as the ground becomes sufficiently dry, and is found to be in good working order (but on no account whilst the ground is wet and sticky), another sowing of Early Giant and Duchess of York, &c., should be made in a good situation, and if a sowing of Duke of Albany or Superlative be made in 48-size (5-inch) pots, and these are placed in a cold house, such as a late vinery or Peach house, the Pea plants will be in good condition for planting out in trenches towards the end of March. If after planting out they are given a little protection from winds, they will well repay the extra labour bestowed.

Onions.—The sowing of Onion seeds in heat early in the year is becoming the general rule throughout the country, not only as was previously the case for the culture of bulbs for exhibition purposes, but also for bulbs for home consumption. Much finer bulbs can be thus grown, and the crops are cleaner, for it is generally admitted, where this practice is adopted, that the Onion maggot is conspicuous by its absence. Seed should now be sown in thumb pots, or in boxes, and these may be placed in an atmospheric temperature of 55°. Ailsa Craig and Magnum Bonum are useful varieties for this sowing, although there are several other favourite and up-to-date varieties that are also well adapted for the same purpose. As soon as germination has taken place, let the plants be placed as near to the glass as possible, keeping them there throughout the period they have to remain indoors, gradually hardening them off as growth advances in order to have them fit for transplanting in the open garden early in April.

Lettuces.—Small sowings of the early varieties of Cabbage Lettuce, such as Earliest of All, Commodore Nutt, and Tom Thumb, and of the approved sorts of Cos, should be made frequently in a gentle heat, and if the seedlings are pricked out as soon as they are large enough to handle into good, rich soil, the desired result of a quick return will be likely to follow.

Potatoes.—Keep up a good supply of tubers which have started into growth, and are therefore ready for planting, in order that they may be planted where those that are being lifted for present supplies have grown, and for planting in additional frames or in pots. If "started" tubers are used for planting, not only is much time saved, but a more even crop will be the result.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Ground-work.—If no spring-bedding is done, all the flower beds should now be thoroughly dug. Have plenty of planks at hand for wheeling upon from the walks to the beds. The nature of the manurial dressing will depend on the type of plant allotted to each bed. While in mixed beds it must be decided by the type which will predominate, it will be found best, as a rule, to richly dress the central portion of the bed and gradually diminish the quantity towards the outside. Such strong feeders as *Lobelia cardinalis*, Dahlias, and those plants in which luxuriance of growth is desired, such as *Ricinus*, *Eucalyptus*, and *Cannas*, should be afforded a good supply of well-rotted farmyard manure. And at the other extreme, with such plants as *Pelargonium*, *Heliotrope*, and *Begonia semperflorens*, where abundance of flower is the chief consideration, a dressing composed chiefly of leaf-mould will be found best. For most bedding plants a good sprinkling of bone-meal worked into the top-spit of soil will be found beneficial, but I am not in favour of applying artificial manures until the plants have established themselves. A watchful eye must be kept on the men while the digging is in progress, as at times there is a tendency to hurry over this work, and the points and corners of the beds suffer. It is difficult to persuade them that the flower garden should be as deeply worked as the kitchen garden.

Carnations.—Beds should now be prepared for receiving the plants which are wintering in frames. The outdoor plants should also receive attention, removing decaying leaves and weeding the beds, also stirring the surface-soil. A

dusting of soot around the plants will promote good colour in the leaves and destroy slugs.

Hollyhocks.—In most gardens the ravages of the Hollyhock disease prevent any attempt being made to grow this noble plant as a perennial, but if seed is sown now in moderate heat, plants can be raised which will flower this year and escape disfigurement to any great extent. Those plants which were raised last year and are wintering in light, airy houses should for a time be still kept on the dry side and frequently examined for any signs of disease. As a preventive measure they should be frequently dusted with flowers of sulphur.

Zily of the Valley.—The beds should receive a top-dressing of well-decayed manure; this should be broken up rather small, or it will impede the growths when the plants commence to come through the surface. From the present time until growth commences out of doors, home-grown crowns will force just as well as imported crowns, and have the advantage of being more fragrant. If it is desired to utilise the home stock, a breadth should be lifted and sorted, retaining the crowns of flowering size for forcing, and with the remainder either make a fresh bed or plant them in such places as the wild garden or at the edge of a wood.

Montbretias.—The older varieties quickly become congested, and it is necessary to lift the corms, at least, every other year. After enriching the soil, replant the largest corms [in a fresh position if another favourable one is available].

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Control of Games (continued).—When games are under the direct control of the Parks Department it is necessary to have definite play-pitches marked out and distinctively numbered in each recreation ground where play is allowed. In the case of football and hockey the side boundaries of these pitches need not be more than a few yards apart, but with cricket and baseball, for the sake of safety, the distance from pitch to pitch should never be less than 70 yards.

Notice from Clubs.—It is also essential for the Department to know for a good while beforehand of all the matches for which the grounds are likely to be required from time to time. To secure this information and prevent any misunderstanding we find it useful before the beginning of each game season to have notices posted up in our recreation grounds inviting club secretaries to send us as early as possible a list of their season's fixtures, with an intimation as to which park they would prefer to play in. As these fixture-lists come to hand the dates required by the various clubs, with the different grounds preferred, are entered upon a sheet of double foolscap paper specially drawn up for the purpose. A perusal of this document will indicate in a few moments the number of pitches required in each park on any given date.

Permits are issued to the different secretaries once a month for the use of a pitch for each match (if possible) shown on their fixture card. Each permit has the name of the park where the match is to be played distinctly printed on it, with the date, number of pitch to be used, and the time at which the game starts. Before any play is allowed or apparatus erected, this permit has to be handed over to the man in charge of the ground. To prevent mistakes, this official, each day matches are to be played, receives from the office a form upon which are shown the names of all the clubs playing, the number of the pitches allocated to each, and the time at which play begins. This form is returned to the office with what remarks the keeper may think necessary to insert about any game played, or the conduct of players. If the park keeper is of opinion that the ground is too wet for play, he puts up notices to that effect at all the entrances to the ground in question, and sees that play of no description takes place till it is dry again.

Changes in Programme.—As it would be a matter of impossibility to have fixtures completed at the beginning of the season, it is quite out of the question to allocate pitches all at one time. Clubs have to alter and add to their engagements as the season goes on, as they sometimes find they have to abandon one match and take on another. They keep us informed of the changes, and we act as best we can to meet their requirements, hence our practice of sending out permits at the beginning of each month instead of only at the beginning of the

season. It very often happens that there are more applications for permits for a certain date than there are pitches to dispose of, and it then becomes necessary to discriminate between the various applicants. To avoid friction we always endeavour to distribute permits as evenly as possible among all clubs, and in such a way that no club has a pitch allocated to it oftener than another.

Casual players.—It must not be concluded from the foregoing statement that we only allow organised games to be played in our parks. So long as goal posts are not used, and the ground is in a fit condition, and not about to be taken up for a match, footballers and hockey players can practice as much as they please. With cricket, however, it is different. Instead of allowing indiscriminate play the Parks Department supplies and erects, free of charge, a number of full-sized practice nets in the quietest parts of the grounds, and restricts all cricket practice to these nets. Each division within a net is numbered in the same way as ordinary pitches, and clubs have one of these allocated to them for so many nights a week for practice. Children using soft balls can amuse themselves as much as they please away from the practice ground, but, of course, are not allowed to play over the match pitches, nor during the time a match is in progress. As might have been expected, when we first took full control of the games played in our recreation grounds we had many difficulties to contend against. These have, however, been overcome, and all local "sportsmen" now recognise that it was an exceedingly good thing for sport when the Parks Committee took the step it did. So as to mislead no one who may be desirous of following this example, I may mention, just to show some of the work it entails, that during the 12 months ending September 30, 1906, we issued no fewer than 1,878 game permits, besides a great number of letters and circulars in connection with the playing of games.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Peach and Nectarine trees.—The pruning, cleansing, and re-training of these must now be undertaken, and the opportunity is thus presented of dispensing with any aged or exhausted branch, so that clean young growths from near the base of the tree may have the necessary space for their development, without which it is impossible to maintain a tree with good fruit-bearing wood. The cutting out of shoots in autumn that have borne fruits is good practice, and where this was done there will remain little pruning to do now, except in such cases as mentioned above.

Cleansing the trees.—Scale insects are often troublesome on out-of-door Peaches; these are best removed with an ordinary pot label, especially the large brown scales which usually infest the old wood. In bad cases it is best to go over the whole tree with the label, dislodging as many scales as possible previous to washing. For washing the trees dissolve 12 ounces of soft soap in 4 gallons of warm water, and add a handful of flowers of sulphur and half a pint of quassia extract, thoroughly mixing all together. Keep the mixture constantly stirred during its application to the trees. A sponge, or a painter's soft brush, are useful for rubbing the wood, drawing it towards the points of the young growths, so as to avoid bruising or even displacing the blossom-buds. Should any shoots get broken, prune them back to a wood-bud, which is easily discernible by being more pointed than a blossom-bud. Let the walls be put into good condition by "pointing" the brick or stone-work, and afterwards applying a coat of limewash or colouring. It may not be necessary to do this every year, unless the trees suffered badly from aphid or red spider.

Training.—Spread out the main branches so as to induce a proportionate distribution of the sap over the whole tree. Between these, the bearing-wood should be laid in at from 4 inches to 6 inches asunder. It must be borne in mind that a young shoot will have to be trained in from the base of each present shoot for fruiting in 1908. Whether shreds and nails are used, or the shoots are to be tied to wires, take care to allow ample space in shred or tie for the development of each shoot.

The borders.—Having trained the trees, rake over the surface of the border to remove rubbish,

&c., and if a top-dressing is considered to be necessary, prick up with the garden fork three inches of the old soil, wheeling this away and replenishing with good loam, adding one barrowful of crushed mortar rubble and one of wood ashes respectively to every dozen barrow-loads of loam. If no top-dressing is to be applied, then scatter a thin layer of wood-ashes and bone meal over the surface, pointing this in with the fork as soon as the soil is dry enough for it to be done.

Apricots.—Some gardeners postpone the pruning and training of Apricot trees until the present time, but the sooner it is finished now the better, as the Apricot is the first fruit tree to open its blossoms. "Spurs" should be pruned beyond where they were stopped in summer; short, stubby growths and extension shoots may be left as they are when extension shoots have not made more than 18 inches of growth in the past year. If they have made more than this, then shorten them one-third their length. Apricot trees being so liable to "gumming," it is very important to see that neither wire nor nail

moss, which should be cut up roughly. Keep the plant about on a level with the rim of the pot, with the base of the bulbs just touching the moss, so that the young growths will be free from anything that may cause them to decay. *M. candida* and its variety *grandiflora*—being at rest—should not be repotted until growth recommences. The same remarks apply also to the white-lipped *M. cuneata*, whose flower spikes are now well advanced. The varieties with creeping rhizomes as *M. spectabilis*, *M. Moreliana*, *M. Lubbersiana*, &c., may be grown in shallow, but rather wide, pans as they extend rapidly in every direction. Old plants which may have lost a number of old pseudo-bulbs, and have become ragged in appearance may be divided, all useless pseudo-bulbs cut away and the growing pieces made up anew. Those pieces with but few roots must be fastened down to the compost, as they will not succeed if they are in the least degree loose. All these *Miltonias* grow well in a cool and shady part of the intermediate house. The rare *M. Schroderiana* grows well in the same degree of heat, but requires rather more light. Afford just sufficient water to these

compost about the roots moderately firm, and insert a few large crocks here and there so that water may pass rapidly away. Very little water is needed at the root until the plants start to grow afresh, when the amount of moisture, heat, and ventilation may be gradually increased.

L. Gouldiana, *L. anceps* and its varieties.—It is advisable to keep these plants in the coolest part of the Cattleya house, or if a Mexican house is set apart for them, the atmospheric temperature should be about 55°. Everything that is possible should be done to prevent the new growths from starting prematurely; the later they commence to grow the better the chances are of their blooming satisfactorily. The plants of *L. autumnalis* and *L. albida* should be suspended in the driest part of the *Odontoglossum* house.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Coleus.—A batch of cuttings may now be inserted, either for providing plants to be used in a small state, or for growing into specimen plants.

Acer Negundo variegatum.—Tall specimens of this ornamental-leaved plant, if forced early into growth, give a pleasing effect when placed amongst Palms and similar plants. The Maples, need to be removed from the plant house in the summer time, but they can then be replaced by ornamental-leaved Abutilons, such as *A. Sellowianum variegatum*, &c. In large and lofty structures, where small plants appear insignificant, a pleasing effect can be made with plants of *Begonia Rex*, arranged in the form of mounds, carpeted with *Selaginella*, *Tradescantia*, or any other suitable plant.

Eucharis grandiflora (amazonica).—The present is a good time to overhaul these plants, tho' roughly cleansing them of insect pests by sponging or spraying. Repot any that require it, but bear in mind that the *Eucharis* generally flowers best when the pot or pan is filled with roots. Healthy plants growing in large pots may be afforded a rich top-dressing, potting only those required for making larger specimens, or that are at present in small pots and require repotting. If any of the plants are in an unhealthy condition, the bulbs should be thoroughly washed out, leaving none of the old, sour soil on the roots. This done, the bulbs should be sorted into sizes, the larger, or flowering bulbs to be potted in large pots of a size considered most suitable in the particular garden, and putting sufficient bulbs in each pot to make a well-furnished specimen. The smaller bulbs should be placed several together in 4½ or 6-inch pots, to be afterwards potted on. The soil for *Eucharis* should consist mainly of sweet, fibrous loam, with all the fine soil shaken from it, but with additions of sand and charcoal. After potting, they should be put into a damp atmosphere of stove temperature, and if a little bottom heat can be afforded them so much the better. As the roots will require very little water at first, great care should be taken that too much is not given, as over-watering is probably the main reason why so many *Eucharis* plants get into an unhealthy condition. For established plants weak soot water is a capital stimulant. I have never practised resting *Eucharis* in cool conditions, as is sometimes recommended, but have always kept the plants in a growing condition. I enclose a photograph of some plants (see fig. 31), which have been grown for nearly eight years in the same stove. Shading from hot sunshine is very necessary, and I have seen *Eucharis* doing very well under the shade of Palms, *Stephanotis*, &c. The finest *Eucharis* I ever saw were grown by a market-grower. The roof glass was shaded with a thick coat of whitewash, the plants were never rested, but several long houses were filled solely with *Eucharis* in the most robust health, and blooming abundantly.

Hymenocallis.—These plants, often seen in gardens under the name *Pancratium*, succeed under similar conditions, with regard to heat and moisture, though requiring perhaps more liberal treatment than *Eucharis*. *H. ovata*, syn. *Pancratium fragrans* is the most popular variety; and *H. macrostaphana*, not met with so often, is a beautiful flower that should be included in a collection of these plants.



FIG. 31.—EUCHARIS GRANDIFLORA AS CULTIVATED BY MR. J. G. WESTON IN VISCOUNT DUNCANNON'S GARDEN, BESSBOROUGH, IRELAND.

presses unduly on the branches. Syringe the trees with quassia extract, and give the same attention to the borders as recommended above for Peach borders. The borders containing either Apricot or Peach roots should extend quite 4 feet from the base of the wall.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Miltonias.—The Brazilian section should now be examined to see if any of the plants require fresh material or additional root-room, this being the proper season to repot them. All the strong-growing varieties as *M. Clowesii*, *M. Russelliana*, *M. Lamarckiana*, *M. Binotii*, *M. Veitchii*, *M. Regnellii*, &c., are best grown in pots which should be well drained with Fern rhizomes. Let the compost consist of American root-fibre (*Osmunda regalis*), pulling this apart into lumps which may be placed firmly among the roots of the plant, covering the surface with a thin layer of sphagnum-

repotted plants to keep the surface moss in a growing condition, but when they commence to flower they should be kept more than ordinarily moist. See that the young roots now pushing from the newest growths are not injured by insect pests.

Laelias.—The majority of the American *Laelias*, as *L. autumnalis*, *L. albida*, *L. Gouldiana*, and those of the *L. anceps* type, will have finished blooming for the season, and before the leading bulbs commence to make new roots the plants may, if necessary, be repotted. It is advisable to avoid all needless disturbance of the old roots, as the plants often fail to bloom satisfactorily the next season. When repotting old-established plants it is not essential to retain more than two or three pseudo-bulbs to one piece which can easily be potted separately or re-made up into compact specimens. For these plants shallow pans or pots may be employed, good drainage is essential, and for a compost two thirds of the best fibrous peat and one third sphagnum-moss may be used, adding a moderate quantity of small crocks and coarse silver sand. Make the

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, FEBRUARY 2—
Soc. Franç. d'Hort. de Londres meet.
German Gard. Soc. meet.

TUESDAY, FEBRUARY 5—
Scottish Hort. Assoc. meet.
Nat. Amateur Gard. Assoc. meet.

THURSDAY, FEBRUARY 7—
Linnean Soc. meet.
Manchester and North of England Orchid Soc. meet.

FRIDAY, FEBRUARY 8—
Roy. Gard. Orphan Fund Ann. Meeting and election of candidates, at Simpson's Restaurant, Strand, London, W.C. Friendly dinner in evening.
Roy. Scottish Arbor. Soc. Annual Meeting.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—59°4'.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, January 30 (6 P.M.): Max. 42°; Min. 35°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, January 31 (10 A.M.): Bar., 30.0; Temp., 36°; Weather—Hard frost.

PROVINCES.—Wednesday, January 30 (6 P.M.): Max. 40° Yarmouth; Min. 35°, Peebles.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
Hardy Border Plants and Bulbs, Roses, Azaleas, Fruit Trees, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY—
Clearance Sale of 14 Greenhouses, Piping, Brickwork, &c., at Ashburnham Park Nurseries, 499, King's Road, Chelsea, by Protheroe & Morris, at 12.

WEDNESDAY—
Hardy Border Plants and Bulbs, Liliiums, Azaleas, Rhododendrons, Palms and Plants, at 12; Roses and Fruit Trees at 1.30 and 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Roses, Plants, Lilies, &c., at Stevens' Rooms, 38, King Street, Covent Garden, at 12.30.

FRIDAY—
Imported and Established Orchids in variety, Orchids in flower and bud, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The annual meeting of this excellent society was held at "Simpson's" on January 24, after our issue had gone to press, so that we were unable to chronicle the results of the election. We are now able to mention the names of the successful candidates, and to assert once more that the Society is excellently managed, and, so far as its means allow, doing its work very efficiently. It might do more were it better supported, especially by the gardeners themselves. We trust that in future many more owners of gardens will follow the example of Lady Ilchester and of Earl Beauchamp by throwing open their gardens once a year on payment of a small sum, for the benefit of the institution. The society has, within our recollection, not only made great progress, but it has loosened the shackles which encumbered it and prevented it from accomplishing all the good it was intended to do. Even now it seems anomalous that men who have subscribed for several years, whose claims are beyond dis-

pute, or that the widows of such men, should not be placed by the committee at the first opportunity on the pension list (subject to the approval of the members), but without the formality of obtaining the suffrages of the voters.

All the cases are deserving, but those who have done their best when they had the opportunity to help their fellows should be the first to receive aid when they stand in need of help themselves. Of late years the committee has done something in this direction by crediting such candidates with a number of votes in proportion to the amount subscribed or the special necessities of the case. This is a step in the right direction, but anyone who looks down the list and refers to our report of the proceedings will see at once that there are certain candidates whose claims are so substantial that (assuming that other circumstances permitted) they should have been placed on the list at once without having to trouble their friends, or still more important, without having to wait years before securing the benefits of the institution.

The Victorian Era Fund and the Samaritan Fund render great assistance in these circumstances, and we trust most earnestly that these excellent funds will be largely increased in the future.

It is hardly becoming to report at full length the proceedings at the "friendly supper" which follows the work of the day, because it is understood that this is a private rather than a business meeting, and no one who knows the circumstances will begrudge the members their recreation after the labours of the day. We may, however, comment without impropriety on some remarks made by the chairman as to the necessity of raising the position of some gardeners by a better education, and by a higher general rate of remuneration. It is to be hoped that there are not many "gardeners" to whom the disparaging remarks made by the chairman can apply, but there are some few, no doubt, and these are the very men whose names we should not expect to find among the subscribers to the Gardeners' Benevolent, or to the Orphan Fund.

The British Gardeners' Association, which now numbers 1,000 members, was formed with a view of affording some guarantee of character and competence, and thus of eliminating the incompetent and the undesirable who practise under the name of gardener. It is endeavouring to raise the social standard of the members of the craft by co-operation and other legitimate means. The success or the inefficiency of the charitable institutions are, of course, inseparably bound up with the financial position of the gardeners. As they become raised in the social scale, and as their remuneration is increased in proportion to their responsibilities, so shall we hear less of questionable commissions, and more and more of that self-respect which will cause the gardeners to depend more and more on their own exertions and less and less on the benevolence of outsiders. Larger support will be given to the gardening charities, and more and more power for good will accrue to the British Gardeners' Association.

We may here add that the 68th Annual Dinner of the Gardeners' Benevolent will be held on Wednesday, June 26, at the Whitehall Rooms, Hotel Metropole, when the Hon. Walter Rothschild, M.P., will preside.

OUR SUPPLEMENTARY ILLUSTRATION.—The name under Mr. SMITH's engraving of *Rudbeckia Heliopsis* x was printed as *Rudbeckia Heliopsis* under the impression that that was the correct name of the plant figured. We learn, however, that this is erroneous, and that the proper spelling is *Rudbeckia Heliopsis* x. It is unfortunate that two names so closely similar should have been given to two different plants. The following communication from Mr. GUMBLETON, to whom we were indebted for the specimen, gives the history of the plant and shows it to be a hybrid between the old *Rudbeckia* or *Echinacea purpurea* and *Helianthus multiflorus*. If this be really the origin of the plant the case is one of great interest:—

"I received a plant of this hardy Composite (the Red Sunflower) towards the end of 1905 from its raisers in Germany, Herren KOHLER & RUDELL, of Windischleuba, Altenburg, who assert that it is a hybrid resulting from the cross fertilisation of *Helianthus multiflorus* with *Echinacea purpurea*, and they have named it the Red Sunflower. It bloomed freely in my garden during last summer, producing about 30 flowers. I was somewhat disappointed with the colour, which could hardly be called red, but the large number of flowers, most of which opened simultaneously, made it a very showy object in the garden. I had previously tried to raise it from seed, but could not get them to germinate." W. E. Gumbleton.

NATIONAL CHRYSANTHEMUM SOCIETY.—The secretary informs us that the annual general meeting of the members of this society will take place at CARR's Restaurant, 264, Strand, W.C., on Monday next, February 4, at 7 o'clock in the evening. CHARLES E. SHEA, Esq., president, will preside. Agenda: To receive the executive committee's annual report and accounts for the year 1906; to elect officers for the year ensuing; to consider, and, if approved, to adopt, the new rules of the society as per draft circulated among the members; to transact such other business as pertains to the annual general meeting.

GEO. MONRO, LTD., CONCERT.—The committee informs us that the 11th annual concert will be held on Thursday, February 21, at the Queen's Hall, Langham Place. GEO. MONRO, Esq., will preside. From the cash statement of the results of the concert held on February 22, 1906, we learn that the following donations were given to charities: Ten guineas were given to the Gardeners' Royal Benevolent Institution, six guineas each to the Wholesale Fruit and Potato Trades Benevolent Society, and to the Surgical Aid Society, five guineas to the Charing Cross Hospital, three guineas each to the Royal Ophthalmic Hospital, and to the Covent Garden Lifeboat, and two guineas to the GEO. MONRO, Ltd., Pension Fund, and the GEO. MONRO, Ltd., Outing Fund, total £98 17s. The total gross receipts from the concert were about £200, and the expenses £160.

PRESENTATION TO A GARDENER.—Mr. W. McCOLL, bailiff and head gardener to Sir MARK COLLET, Bart., was presented with a clock by his fellow employees, at St. Clere, on Wednesday, January 16, on his leaving St. Clere to enter the services of Mr. J. CLIFFORD CORY, at Llantarnam Abbey, Monmouthshire.

LINNEAN SOCIETY.—The next general meeting will be held at 8 p.m. on Thursday, February 7, 1907. Papers:—1, Dr. OTTO STAFF, F.L.S., "New Plants from Malaya"; 2, Mr. F. CHAPMAN, A.L.S., "Tertiary Foraminifera of Victoria—The Balcombian Deposits of Fort Philip." Exhibitions.—1, Messrs. H. & J. GROVES, F.L.S., Specimens of *Chara ornithopoda*; 2, Rev. JOHN GERARD, S.J., F.L.S., Some Observations of Climbing Plants (with lantern slides); 3, Mr. W. ROSE SMITH, Herbarium formed by A. Ruperti, 1638-1700.



THE RED-SUNFLOWER, *RUDBECKIA HELIOPSIDIS*, FROM THE COLLECTION
OF W. E. GUMBLETON, ESQ.

THE PREVENTION OF CORRUPTION ACT.—We have received from two separate sources a copy of the following circular, sent to gardeners and emanating from a well-known German seed firm:—"Herewith I have the pleasure of presenting you my new general seed catalogue which I recommend to your kind notice. As the direct demand for my Erfurt seeds in consequence of their excellent quality is increasing from year to year in England, I take the liberty in offering a bonus of 10 per cent for all orders kindly entrusted to me, and 20 per cent. if amount of invoice exceeds £5. All my seeds uphold the standard of superiority, and must not be confounded with the average quality in the trade which are very profitable for the dealers, but are disappointing to the sower. Thanking you in anticipation for your kind orders. It is necessary to caution all agents and gardeners that the receipt of such 'bonuses,' if not made known to the principals, will be attended with great risk of severe penalties."

BRITISH GARDENERS IN THE UNITED STATES.—We lately published, by the courtesy of Mr. WALLACE, a list of horticulturists who had migrated from the mother country to the United States and achieved eminence in their new abode. We have often regretted that we hear so comparatively little of the doings of those who have left our shores, and that, whilst we are familiar with the doings of the few at the top of the tree, we hear relatively little of those perhaps equally good men, but not so well known to the horticultural public. Amongst others we note the following:—ALFRED LOVELESS, President of the Chrysanthemum Society of America; born September 26, 1866, at Langford, Somerset, went to the United States in 1889. JOHN K. M. L. FARQUAR, born at Fyvie, Scotland, on July 23, 1858. He was an old Chiswick student, and is now one of the directors of the Society of American Florists and "Ornamental Horticulturists" (*sic*).

DR. HERBERT WEBBER, who visited this country at the time of the first Hybridisation Conference, and has for some years been connected with the Government Bureau of Plant Industry at Washington, has accepted a professorship in the Cornell University. His duties will have special reference to experimental work in connection with horticulture and agriculture.

NO MORE "POD-BURSTERS."—To obviate the unsightliness of the split calyx, Messrs. MAXFIELD & DIMOND, of Warren, R.I., have, says the *American Florist*, invented a sheath which is slipped over the bud and prevents the splitting of the sepals. Our contemporary adds that it has examined this artificial calyx, and "considers it the simplest and most feasible device of this character that we have seen."

THE AMEER OF AFGHANISTAN.—The AMEER OF AFGHANISTAN is a great gardener, and under direct orders his agents lately in England have placed extensive orders for the complete equipment of his garden according to the most up-to-date ideas, from an improved spade to the choicest of products. Messrs. CARTER, the King's seedsmen, of High Holborn, have received instructions to make a large shipment in this direction, the Ameer himself having marked down in their books many of the specialities that he is anxious to have tested in the Palace gardens at Kabul, previous experiments having proved so successful. Special parcels have also been made up for distribution among the Court officials at Kabul. At present the Royal gardens are arranged according to Western ideas, and the surroundings have become quite picturesque owing to the plantings of trees made some years ago by the English gardener sent out by Messrs. CARTER & Co.

RESEARCH.—The following remarks by Mr. HALL, the director of the Rothamsted experimental station, at the Society of Arts, apply in their degree as much to horticulture as to agriculture and are specially applicable now that a start is being made at Wisley.

"What provision is this country making for adding to the stock of knowledge at the service of the farmer? A start has indeed been made in the direction of education, but the necessary preliminary to education is research. The teacher can only hand on what is already known, and there is much yet unknown about the growth of our commonest crops and the action of our standard fertilisers. Only by continued investigation and experiment can a knowledge be obtained of the conditions necessary to make the maximum profit out of our land, our crops, and our stock. What provision then is the country making for research in agricultural matters? Well, I can only tell you that the grants of our Board of Agriculture for agricultural research during the past year amounted to £425, while the corresponding grant in the United States of America (salaries and administration expenses being excluded in either case) was more than £200,000. Looking at the various yields of the various countries of the world we find that Great Britain is the most intensively farmed country; it contains the biggest crops per acre, it has to spend the most to obtain them. Furthermore, the bigger the crop the greater are the risks of disease and blight, and the greater are the difficulties in securing high quality. Here then in Great Britain exists the greatest need for knowledge and investigation; nor can we always beg knowledge from wiser countries, for many of our problems are special and brought about by the very conditions of high farming which prevail here. England was the first country to start an experimental station, yet Rothamsted still remains the only institution solely devoted to agricultural research in the British Isles, if we except the farm of the Royal Agricultural Society at Woburn. The income of the Rothamsted station, derived from private benefaction, is about £2,600 a year; in the United States each of the 58 States possesses a station receiving £3,000 a year from the Federal Government, in addition to what the State itself may contribute, while there is also the great Central Department of Agriculture, of which I have already spoken. Yet Rothamsted cannot obtain a grant from the Board of Agriculture to extend its operations; the country is too poor, agriculture too unimportant an industry."

CHRYSANTHEMUMS AND HOW TO GROW THEM FOR EXHIBITION.—When a book reaches a fourth edition, pretty good evidence is afforded that the publication has justified its existence. This is the case with the little work above mentioned which is published at the cost of 1s. by Messrs. Collingridge, 148, Aldersgate Street, E.C. The title explains the limitations the author, Mr. J. B. WROE, has imposed upon himself, and the preface explains the author's views at fuller length. We have then an excellent practical treatise on the culture of the plant for exhibition purposes. The multifarious details, the times at which they should be carried out, are all explained fully and stress is laid upon the kinds that do well in the south but not so well in the north, and *vice versa*. Lists of appropriate varieties are provided, as well as copious tables, a few illustrations and an index. We could have wished a fuller account of the important subject of bud-variation as illustrated by the several "breaks" and the process of "taking" the buds, but the limitations of the book afford us no right to complain of a book intended for exhibitors only. We can only hope that someone with sufficient competence and skill will undertake the study of bud-development as shown in the Chrysanthemum, as we are sure that the results would not only be of scientific interest, but would eventually facilitate the labours of the growers.

SAN FRANCISCO.—The florist's business is recovering after the earthquake and fire. All the old firms have, says the *American Florist*, resumed business, and several new ones have appeared, amongst them four Japanese establishments.

FIRE AT A WOKING NURSERY.—Damage to the extent of between £350 and £400 was done by a fire at the Goldsworth Nursery of Mr. W. C. SLOCOCK, in the early hours of Sunday last. The outbreak was first observed about one a.m., by a lady, from a bedroom window of The Beacon, which overlooks the nursery, and her husband immediately ran to arouse Mr. SLOCOCK, who telephoned for the Woking Fire Brigade. A large quantity of nursery stock, comprising some 55,000 plants, chiefly fruit trees, packed ready for dispatch, was either destroyed or damaged, together with a waggon, tip cart, spring cart, and many bales of peat moss. The origin of the fire is unknown, Mr. SLOCOCK's loss is partly covered by insurance.

A TREE'S HISTORY.—One of the giant trees of California [Wellingtonia], whose pictures adorn a good many advertisement boards, was cut down some time ago, and on examination revealed a most instructive history of the forest fires, which had swept the region where for more than 2,000 years the trees had existed. The effects of fires occurring centuries ago are registered in the trunks of trees, and the record is completely concealed by subsequent healthy growth. The tree had an enormous burn on one side, 30 feet in height and occupying 18 feet in its circumference. This burn was due to a fire which occurred in 1797, and the tree had therefore occupied more than a century in its efforts to repair this injury, its method being ingrowth of new tissues from the margin of the great black wound. The tree began its existence in about 271 B.C., and in 245 A.D. occurred a burning on the trunk 3 feet wide. This fire took place therefore in its 517th year. A hundred and five years were occupied in covering this wound with new tissues. For 1,196 years no further injuries were registered. In 1141 A.D., at 1,172 years of age, the tree was burned a second time in two long grooves. Each had its own system of repair. In 1580 A.D., at 1,851 years of age, occurred another fire, causing a burn on the trunk 2 feet wide, which took 56 years to cover with new tissues. Two hundred and seventeen years of growth followed the burn. In 1797 A.D. occurred the tremendous fire which burned the great scar of 18 feet wide. In the hundred odd years which have since gone by, the tree had been repairing the burn, and had reduced the exposed area by about 4 feet of width.

MR. HOLMES' COLLECTION OF ALGÆ.—Through the generosity of Mr. W. A. CADBURY, the large collection of Algæ made during the last 30 years by Mr. E. M. HOLMES, F.L.S., Curator of the Pharmaceutical Society's Museums, has been acquired for the botanical department of the University of Birmingham. The collection includes about 13,000 specimens, and has the reputation of being, apart from the national collections at the British Museum and Kew, the best collection of Algæ in the country. The collection has been made by Mr. HOLMES in his holidays during the last 30 years. It is, as we learn from the *Pharmaceutical Journal*, essentially a collection of authentic specimens carefully selected and mounted so as to show the character of the branching; each variety and each form of fructification in any species receiving a separate sheet to itself and every variety of a species obtainable being represented. When Mr. HOLMES began the study of marine Algæ only 400 British species were known, but the number of British species has now been raised to 750. Mr. HOLMES' collection of British Lichens, probably one of the best as regards rarity and beauty of specimens ever made, is now in the possession of the Nottingham University College Museum, and his collection of Mosses, largely representing those of Devon and Cornwall, passed some years ago into the possession of Cambridge University.

EVESHAM GROWERS AND FRUIT-PESTS.

Some representative fruit-growers and market-gardeners of the Evesham district met at the Town Hall, Evesham, on January 23, under the presidency of the Mayor (Mr. W. A. FISHER), to consider a proposal to revive the old Evesham Fruit-Pests Committee. Mr. T. E. DOEG, a member of the old committee, referred to the good work done by that committee which was organised in 1890. It was then quite a common occurrence to see large areas of Plum trees as bare of leaves at midsummer as in the winter, owing to the unchecked plague of the winter-moth caterpillars, for grease-banding had not then been properly and systematically carried out, and no other means had ever been adopted to protect the trees against other pests. It was through the old committee that systematic grease-binding in the winter months was generally adopted in the districts with the auxiliary use of spraying in spring or early summer. With the advantage of improved methods a committee might carry on investigations which could not fail to prove of immense value to the fruit-growing industry. Mr. W. MASTERS said he believed the future of fruit-growing was very largely dependent upon work such as was proposed. It was not only a question of preserving the crops, but they had to consider the quality of the fruit which pests so much affected. Mr. H. BASTIN POLLARD suggested the consideration of frosts, bullfinches, silver leaf, and the borer as subjects [of investigation] for the committee. Mr. G. F. HOOPER said that it might be advisable for the county authority to assist them to retain Mr. THEOBALD or Mr. COLLINGE as experts, so that they might have the highest professional opinion. Other suggestions were offered, and ultimately a committee of 14 was elected, and it is understood they would consider the question of rules, officers, and the constitution of the new body generally.

ACACIA (MIMOSA) FOR THE ENGLISH MARKETS.

—Large quantities of Acacia sprays at this season find their way to our markets and florists' shops. These come chiefly from the South of France, whence, in 1903-1904, 500,281 packages were despatched between December and April. On an average, says the *Revue Horticole*, the small growers along the French Riviera obtain for their flowers generally an annual revenue of about 4,000,000 francs (£160,000). The species principally cultivated, under the misleading name of Mimosa, are *Acacia floribunda*, which comes into the market from November to February, and *A. dealbata*, which comes in a little later. Nice, Cannes, Hyères, and Vence are the principal stations whence quick flower-trains are despatched, via Boulogne, to London. At first the growers depended on specimens growing in the open air, of which so many may be seen in the public gardens at Nice and elsewhere. Now, a common practice is to cut the flowering branches before the flowers expand, place them in jars of water in a dark place, and exposed to a temperature of 28° to 30° C., (84° to 86° F.). At the end of 24 or 36 hours the flowers are sufficiently expanded. In other cases forcing is carried on in low pits warmed and shaded. Care has to be exercised in choosing the branches for forcing, those in the centre of the tree away from the sun are the best for early work. If when the buds are squeezed in the hand they readily fall to pieces, they are in a fit state to be forced. Those which are not thus disintegrated must be forced at a later date. Forcing is generally begun at the beginning of January. The trees are propagated by offsets from the roots, especially from those species which are known to flower early. In order to promote the production of these offsets the lateral roots are twisted or sliced longitudinally, and a small narrow portion of the bark removed. The price obtained in the London market varies, according to the season,

from 2.50 to 7.50 francs, and even 12.50 francs per package weighing 5 kilos. (11 to 12 lb.). The package is sold with the flowers. It is said that the London dealers forward the packing material to the growers and deduct the cost from the produce of the sales. The salesmen charge a commission of 10 per cent. plus the cost of transport from Boulogne to London. The freight from Nice to Boulogne is paid by the growers. Packages leaving Nice on Monday at 1 p.m. arrive in Covent Garden at about 5 a.m. on Wednesdays, i.e., in less than 40 hours. There is no Customs duty to be paid here on these packages.

GERMAN HORTICULTURAL EXHIBITIONS.

—MANNHEIM is preparing an extensive horticultural exhibition this year from May 1 to October 20. The town of Mannheim is situated on the Rhine where the Neckar falls into that river, and is only half an hour from Heidelberg, known for its old castle, and an hour's drive from Darmstadt, a well-known place for modern art and horticulture. Mannheim is on the direct route from Mayence and Frankfurt to Baden, Karlsruhe and Switzerland. Very considerable funds are guaranteed, and the town of Mannheim is preparing an exhibition combining art and horticulture. There will be not only a permanent show, lasting all the summer in the grounds, but nearly every week there will be special shows of Orchids, flowers, fruits, and other products of the season. Art and horticulture will be united in laying out a number of gardens in different styles. A large water-garden will serve to display all kinds of Nymphaeas, many up to this time not known to horticulture and botany. Many houses will be filled with Palms, Victoria regia and V. Cruziana, Orchids, Nelumbiums, &c. The large hall, the Rosengarten, besides other large halls, are prepared to open their doors to the horticultural products of the whole country. From May 7 to 9 the first international Orchid exhibition will be opened. Roses will be specially well shown at Mannheim, besides very many not specially mentioned.

DRESDEN.—A large international horticultural exhibition will also be held at Dresden from May 4 to May 12, so that it will be possible for the visitor to Germany to see both these exhibitions in one journey.

THE ROYAL AND IMPERIAL HORTICULTURAL SOCIETY OF VIENNA.—The project of instituting a permanent exhibition of plants in the society's buildings, which are conveniently situated on the "Ring" in the centre of the city, has for some time been under discussion, and it came before a general meeting of the gardeners of the vicinity and members of the trade in November in a concrete form, the following proposals being made by the landscape gardener, Herr JOHANN ZOFF:—(1) That for the purpose of a permanent exhibition the glasshouses (cold and warm) and pits and frames, as well as a portion of the reserve garden, should be set aside by the society. (2) All plants brought before the members, on the Sprechabenden (evenings for discussions and speeches), also inclusive of novelties of special interest, would be on view in these glasshouses free of charge. (3) In recognition of deserving novelties of the exhibitor's own raising, first, second, and third-class certificates would be awarded by the committees concerned, these certificates being awarded on the occasion of the annual distribution of prizes. (4) The cost of carriage to the society's premises to be defrayed by the sender, and that of their return, if outside of Vienna, to be paid by the society. Seeing that the society's glasshouses, offices, &c., are situated in the heart of the town, and readily reached from all points, it is expected that horticulturists will visit these permanent exhibitions in considerable numbers, their attention being directed to

them by the trade journals. At the present, everything is vague and indefinite, and it is yet too soon to prophesy.

INCREASED PRIZES FOR VEGETABLES AT THE SHREWSBURY EXHIBITION.—Growers and exhibitors of vegetables will learn with exceeding interest that the committee of the Shropshire Horticultural Society has agreed to put these products on a higher plane this year in relation to prizes than they have hitherto occupied. At Shrewsbury, plants, flowers, and fruit have long been encouraged by magnificent prizes; now vegetables are to be similarly honoured. The Society's class for 12 kinds, for which the prizes hitherto have been £4, £3, and £2, will now have prizes of the value of £10, £7, £4, and £2. The Shropshire county class will also have its prizes increased in value. But to prevent any diminution of competition in the trade-classes for vegetables, hitherto the chief classes in this section of the exhibitions at Shrewsbury, not only will each one be for nine kinds to make all equal, but a special prize of 10 guineas will be given for the best collection in these trade classes. This is certainly most liberal encouragement.

Publications Received.—*Annual Report of the New Zealand Department of Agriculture.* This, the 13th annual report (for 1906), is a bulky tome of which Mr. T. W. Kirk is editor, and he is also responsible for the divisions of biology, horticulture and publications. A wonderful amount of work is carefully chronicled. The book now contains many illustrations.—*The Agricultural Gazette of New South Wales.* December, 1906. Contents: Typical varieties of wheat grown in N.S.W., F. E. Guthrie; Rhodes Grass, J. H. Maiden; Water Hyacinth in N.S.W., &c.—*Le Moniteur du Jardinier*, 20th January. University of Illinois Agricultural Experiment Station. Urbana, November, 1906. Circular No. 105.—*The Duty of Chemistry to Agriculture*, by Cyril G. Hopkins.

FORESTRY.**FORESTRY AT THE UNIVERSITY OF OXFORD.**

THE latest addition to the University, the forestry branch, is developing rapidly, as the following data will show. There are now 56 students of forestry at Oxford, namely:—First-year students, 27; second-year students, 16; third-year students (on practical work), 13. Of these students, 43 will go to India, two to an Indian native state, eight to the Colonies; two are private students for the diploma (both having already taken their degree), and one is an Alsatian. During the year 1907 18 additional probationers will be appointed, by nomination, on the recommendation of a selection committee. Candidates must, on July 1, 1907, be over 18 and under 22 years of age. They must send in their applications not later than July 1, 1907. Full particulars can be obtained from the secretary, Judicial and Public Department, India Office, London, S.W. The Professor of Forestry, Dr. Schlich, at 29, Banbury Road, Oxford, is ready to advise any candidates. *Times*, January 28, 1907.

THE DOUGLAS FIR AS A FOREST TREE.

PRINCE BISMARCK showed me his Douglas plantation at Friedrichsruh when I was staying with him in September, 1889, shortly before his "fall." Those at Varzin I never saw. The Chancellor was specially proud of a curiously thick patch of "Douglas," then about 10 years old. Never had I seen Conifers, except self-sown Scotch, so thick upon the ground.

In reply to your editorial request for opinions as to "variations" and "rate of growth," may I add that warning against the Colorado variety [except for ornamental purposes] is needed, inasmuch as "Douglas" is Douglas to a British Crown forester, and this slow-growing blue or glaucous variety is mixed with the vivid green Californian or "Pacific-slope" Douglas in some recent plantations. D.

THE PROPAGATOR.

THE period is approaching when there will be a renewal of growth at the roots of most indoor subjects, and the plant-propagator will recommence his labours after his two months of almost enforced inactivity in this department of gardening. A few remarks may therefore be considered appropriate in regard to the pots, pans, &c., used for the reception of the cuttings. The receptacles may either be small pots, from 1 to 2 inches in diameter, or shallow pans, of widths varying from 4 to 8 inches in diameter; and in order that the cuttings shall have no large amount of soil beneath them, holding much moisture, and tending therefore to promote decay in the cuttings, the height of a seed or cutting pan should not exceed 3 inches, and it should be furnished with a central outlet and several others at the side, quite close to the bottom.

Pots and pans of greater diameter and depth than those named should not have the central

be placed, and pressed evenly and firmly, then the soil, and finally the sand layer. The proper rule to follow in affording soil is to choose that in which a plant is known to grow best, and to add to this a certain proportion of clean sand. The last layer, the sand, should be as clean as it can be obtained, or, failing that, it should be cleansed in several waters before use. The soil should be moderately moist, as a dry soil does not usually set closely around a cutting, and a wet soil sets too tightly, hindering the progress of the tender rootlets, shutting out the air, setting up disease, and ultimately bringing about the death of the cutting.

In general, the soil has less influence on the formation of roots than warmth, moisture, and light. Perhaps the best kind of soil for filling pots, pans, boxes, &c., consists of the finer part of turfy loam, which should be used to the extent of three-quarters the depth of the vessel, over which the layer of sand should be placed, first affording the soil a thorough application of water

as regards its size to the plants over which it is placed; accordingly, big bells should not be placed over a few small cuttings, as these would be more difficult to root than in the company of many.

Instead of being obliged to use many bell-glasses and *cloches*, small, low cases, fitted tightly with glass lights, can be used, these being stood in the propagating house or other suitably-heated structure.

No cutting should be placed in a house or frame having a higher temperature than the species requires for its natural development. When a cutting is placed in a structure that is too warm, and where a moist atmosphere is constantly maintained, the tissues grow with too great rapidity, the vitality of the cutting is soon exhausted, and it then becomes soft and watery, the leaves thin in substance, and it probably perishes. A too low degree of warmth brings other evils in its train. A certain amount of warmth is needed by cuttings of every kind of plant; the immediate effect of which is to



FIG. 32.—VIEW IN THE "SEEDLING" ORCHID HOUSE OF MESSRS. W. BULL AND SONS, CHELSEA.

(See note by Mr. de Barri Crawshaw in the issue for January 12.)

hole covered with a convex crock, but with an inverted pot of small size, commensurate with the size of the pot or pan, the bottom of the inverted pot being level with the surface of sand or soil. This pot serves as a reservoir of heat, for the benefit of the cuttings, and, in the case of a hot-water heated propagating bed, for the passage of heat from the chamber underneath it into the house. The cuttings being inserted in circles around the inverted pot are readily separated when rooted without injury to the roots.

Some propagators, instead of the inverted pot, make use of a little cylinder of charcoal in the middle of the pan or pot and as high as the vessel is deep. For the wholesale propagation of plants, "cutting" boxes of wood, 3½ inches in depth, and from 1½ to 2 feet in length, furnished with numerous holes bored in the bottom, may take the place of pans.

In order to prevent the souring of the soil a layer of sandstone, broken into pieces, about the size of horse beans, should be placed at the bottom over a few hollow crocks. Above the sandstone a layer of chopped woodland moss should

Rooted cuttings are removed from such soil, each with its little piece of loam attached, and potted in suitable soil, without receiving the least injury to the most tender roots, even such as those possessed by Cape Heaths, New Holland plants, &c.

PROPAGATION IN BELL-GLASSES.

For the propagation of some kinds of plants from cuttings, bell-glasses are a necessity; and experience has proved that those of a blue or violet colour favour the development of roots. For covering a number of small pots, the wide half-globular form, with or without facets, and in three or four different sizes, is suitable. There are low bell-glasses for covering small things as *Epacris*, *Erica*, *Leschenaultia*, &c., which are more useful when furnished, at the top, with a hole instead of a solid knob. Cuttings of valuable, tender plants are rooted with greater certainty when a bell-glass is employed to cover each cutting of a suitable size, and the rims must be pressed into the sand, so as to quite exclude the air.

The bell-glass should always be proportionate

induce cell-activity, resulting first in the formation of new growth of roots and then of leaves and shoots.

ROSES AND CONIFERS.

Roses.—The grafting of briar stocks for forming standards, half standards, and dwarf bushes may now be commenced; the stocks for the last-named being seedlings of two years old, with stems as thick as a goose quill. The method of grafting may be whip, side, or crown, and in the case of the last-mentioned, two scions may be inserted in the cleft of strong briar stocks. A scion may have a length of 3 to 4 inches, and consist of ripened wood of the previous year. The stocks should have been potted in October, or early in November, and have been placed in a warmth of 55° three weeks before being grafted. The grafts should be secured with worsted or raffia, and a coating of grafting wax applied warm. Genial warmth should be maintained, and a daily syringing afforded the stocks, and water at the root when needed. When it is observed that a union has been effected, place the plant

in a warm greenhouse, remove all foreign shoots, and in a few weeks cut the ligature holding the graft. The new plant will now make several shoots, and flower well in the spring months, and again late in the summer. Manetti Rose stocks may likewise be grafted now, or on pieces of the roots of cuttings and seedlings 6 to 12 inches long; packing these away in damp soil till later.

Choice coniferous plants may be wedge or cleft-grafted on some common conifer stocks established in pots in early autumn, or the previous spring. "Head-down" the stock to a height of 1 foot, and reserve a small number of needles near the top, removing the others below, for a space of 2 inches, to allow the ligature to be passed round the stock. Keep the grafted plants in a close case in a warm house till a union takes place.

BEGONIAS AND SUCCULENTS.

Begonia Rex and other species, and *Pachyphylum* may be propagated from leaf cuttings placed in amply-drained pans and on sandy soil, stood on a light shelf in a warm house. The propagation of *Echeverias* and *Sempervivums* for flower-garden purposes should now be commenced; making use of cuttings of shoots, of leaves, and off-sets. Very little, if any, warmth is required, and moisture must be continuously applied.

GARDENIAS, &c.

Cuttings may now be taken of *Gardenias* of species, employing fairly mature shoots of 4 to 6 inches in length. These root freely in a warm sand-bed, or in one consisting of sifted loam and sand. The top heat should not exceed 65° at night, and the bottom should not be below 80° to 85°. *Tabernaemontana coronaria* may be similarly increased.

Seeds of Palms, spores of various ferns, and seeds of *Begonias* may all be sown towards the end of the month on a bed with a bottom heat of 80°.

Ixoras and *Correas* may be grafted: and to

annuals of the stove and greenhouse may be sown this month. They require a bottom heat of 75°, and 10° less top warmth.

Vine eyes may be struck this month on 2-inch squares of tough turf, or in pots (60's) on a

TWO NEW ODONTOGLOSSUMS.

Our illustrations represent *Odontoglossum caloglossum* (fig. 33) and *O. "Ruby"* (fig. 34), for each of which Monsieur Charles Vuylsteke, of Loochristi, Ghent, was given an Award of Merit at the



FIG. 34.—ODONTOGLOSSUM "RUBY."



FIG. 33.—ODONTOGLOSSUM CALOGLOSSUM.

promote a union, place the plants on a mild bottom heat. The *Correas* by preference should have as a stock *C. alba*, a vigorous grower, and therefore very suitable. Numbers of tender

Vines, namely, *Magnolia fuscata*, *Wisteria chinensis*, *Hydrangea*, *Pyrus*, *Vitis* of species, *Morus*, *Dracæna*, *Cycas* (from scales), *Pittosporum*, &c. *F. M.*

bottom heat of 80° and a top heat of 65°, and best in a frame on an ordinary hot bed. There are other plants with large, leathery leaves, which may be propagated from "eyes" like

Royal Horticultural Society, on January 22, the two varieties illustrated being the best of an interesting selection shown by M. Vuylsteke on that day. The ground colour of the sepals and petals in each variety is pale lilac, the blotches being reddish claret colour. The lips are white with rose-purple spotting and yellow crest.

LAW NOTE.

ACTION FOR WRONGFUL DISMISSAL.

At the Croydon County Court on January 17, Albert Brooks, of 3, Rectory Road, Surbiton, gardener, sued the Rev. Arthur Tooth, of Woodside, for £4 16s., one month's wages alleged to be due in lieu of notice.

Plaintiff's claim was based on an agreement signed by the defendant engaging to employ him as head working gardener at a weekly wage of 24s. subject to a clear 28 days' notice. He admitted that he agreed to live at the lodge, and said that when he entered defendant's service on the Monday he discharged him immediately because he had not previously sent his furniture into the house.

The defence was that the man practically severed his engagement through not having brought his furniture to the lodge to live there, as agreed, but the Judge did not regard this as sufficient grounds for dismissal. He gave judgment for plaintiff for £1 7s.

NEW INVENTION.

PROTECTING BUDDS FROM BIRDS.

Mr. H. J. Hewett, 4, St. Clement Street, Winchester, sends for our inspection a tool for fixing cotton on Gooseberry and other bushes. It is made on the same principle as a fishing rod, the reel of cotton being fixed at the end nearer the operator, and the cotton runs down the rod in a groove beneath bands, finally passing through a ferrule at the extreme end. The length of the rod is a little over two feet. With the aid of this little implement a Gooseberry bush can be quickly protected with cotton, and without injuring the hands.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

THE "NATIONAL" POTATO SOCIETY.—It certainly looks, judging by your report of the recent meeting of members of this society, that it was near its end. That is much to be deplored, whatever may be the outcome of the resolve to hold an exhibition and conference at Wye College next autumn. Starting some two or three years since, the society was so unfortunate as to be associated, though more by certain trade members than by its officials, with that most disastrous incident in Potato business, the immoral "boom," inaugurated just then over certain novelties, and which, after creating a great sensation, had the result of making interest in Potatoes go up like a rocket, and soon to fall like a stick. It is that sense of disgust in the public mind which has done so much to help kill the Potato Society. One grave defect in its operation was that it depended too much for support on the Potato trade, thus to some extent becoming rather the organ of the trade than of the private or amateur grower. How very much in that respect it differed from the old International Potato Society, which did its utmost to promote Potato culture among all classes, and created quite a small army of gardener, amateur, and cottager supporters and exhibitors. Any Potato society, to be worthy the name "National," can exist on such lines only. If we look at the *clientèle* of some other special societies, we find how strong is the support given to them by the private growers as distinguished from the trade, although in no case does the trade exhibit a desire to monopolise interest, or to control any one society's operations. Based upon such broad lines these societies may go on rendering good service to floriculture for generations. It is on such lines we wish to see a Potato Society based. But there has been strongly expressed a desire to originate something wider in its operations, and that is a Vegetable Society, of a national character, and which would, if existent, necessarily make the Potato a prominent feature. Special societies exist in the interest of several flowers, and with marked success and striking results. Are not vegetables and horticultural products of even greater importance to us than are flowers? Most certainly they are. Why not, then, a great National Vegetable Society, holding its exhibitions annually, especially in London, where is found the greatest body of consumers in the world, and yet these people seldom or never see, as can be seen in so many provincial towns, what real vegetable exhibitions are. *A. Dean.*

PRIMULA × KEWENSIS.—It is interesting to note how true this winter-flowering *Primula* comes from seed; judging from a good batch we now have in flower it is as reliable as the best strains of *P. sinensis*. Several growers I know have experienced a difficulty with plants propagated by division during the summer months. Seedlings are much more vigorous. If given a cool, moist, and shady position they make growth freely, and if occasionally sprayed with XL-All plant wash the leaves keep clean and free from insect pests. As a decorative plant it compares most favourably with any of the *Primula* family; arranged with small single-stemmed plants of *Coleus thyrsoides* they are very effective, and make a good display during the dull months of the year. Being so easily raised from seed, *P. × Kewensis* should become as popular as the other winter and spring-flowering *Primulas*, owing to the beautiful golden colour of the flowers and the freedom in which they are produced. *H. S., Bournemouth.*

PHEASANTS AND PLANTS.—Here the numerous pheasants do not interfere with Gunneras, neither do they seem to care for *Lilium auratum*, *Crocuses* or *Broccolis*. They have, however, a decided liking for Carnations, and despite careful watching, and frightening them on every possible opportunity they devour the foliage, leaving nothing but bare stems. They will lie quiet when anyone is about, but directly they are left alone will recommence their feast. It is possible the rabbits get wrongly blamed for sometimes eating the foliage of Carnations quite bare. It would be interesting to know if any *Chronicle* readers get their Carnations destroyed in the same way. *J. S., Mulroy Gardens, co. Donegal.* [Sparrows are very troublesome to Carnations. *Ed.*]

FROST IN CORNWALL.—On January 22 we experienced a sharp and sudden frost, which continued three days and nights, and greatly injured many sub-hardy plants. Fortunately, we had protected some of them with dry leaves, but *Ceanothus azureus*, *Hedychiums*, *Agaves*, *Chrysanthemums*, *Calceolaria Burbridgei*, *Clianthus puniceus*, *Yucca gloriosa*, &c., felt the cold severely. Some of these last mentioned, which have long branches, drooped, and many of them which were not supported in time snapped; 9° of frost is unusual here. The *Rhododendrons* are late. Unlike the *R. barbatum*, mentioned in *Gardeners' Chronicle* of January 26, the plants here show no signs yet of flowering. *Pyrus japonica* is flowering well against a wall, and true to time are the *Snowdrops*, winter *Aconites*, *Iris reticulata* and *I. stylosa* flowering since the rise in the temperature. *H. W., Trevince.*

RAINFALL IN CO. DOWN.—The following rainfall was taken at Seaford House:

Month.	19.0	1901	1902	1903	1904	1905	1906
January ...	2.37	8.85	3.09	5.14	8.05	1.85	8.97
February ...	4.18	1.46	4.17	8.15	4.84	1.70	2.05
March ...	1.30	2.81	1.77	5.29	2.41	4.07	1.97
April ...	2.81	2.51	8.86	1.97	2.49	2.46	2.09
May ...	3.80	1.65	4.05	8.14	3.08	.98	4.12
June ...	3.20	2.77	8.84	2.97	2.18	8.08	1.28
July ...	4.17	1.59	3.48	4.92	2.81	1.17	2.50
August ...	5.08	3.16	2.75	4.26	4.73	7.92	8.85
September ...	1.66	4.11	5.46	4.49	3.71	1.05	.94
October ...	4.88	2.58	3.00	7.48	.85	1.59	5.18
November ...	6.06	4.64	6.07	2.06	2.86	5.04	2.74
December ...	5.26	8.48	4.19	4.48	3.46	2.99	8.64
Totals ...	44.07	34.56	42.68	48.69	33.97	33.70	34.28
Number of rainy days	205	187	208	244	213	182	224

The average for the last seven years is 38.84.

—*A. F. Grubb.*

RUBUS.—*R. quentlandicus* and *R. laciniatus* are certainly not one and the same, as Mr. Baker states. *R. quentlandicus* was sent to me many years ago by the late E. J. Lowe, and I understood that he had found it on the border of Wales, hence its name. The two plants are as unlike as possible. *T. Smith.*

RASPBERRIES AND BRAMBLES.—The first person, so far as I am aware, to suggest that *Rubus laciniatus* was a variety of *Rubus Selmeri*, which was then called *R. affinis* in England, was the late Lord de Tabley, poet, novelist, botanist, antiquarian, and author of a "Flora of Cheshire." I have found *R. laciniatus* in a wild state in two places in the English Lake district, one, a hedge near Grasmere and the other, less deeply lacinated, between Ulverstone and Swarthmore Hall, the residence of George Fox. Other wild British Brambles occur also occasionally with lacinated leaves, for instance *corylifolius* and *ulmifolius* (discolor, Bab.). In Vilmorin's catalogue there is mentioned a *Rubus affinis* var. *laciniatus*. In England *R. laciniatus* is commonly called Canadian Bramble or American Bramble, but all the recent American botanists refuse to admit it as an American plant. I ought to have included the Mahdi Bramble in my list. It is a hybrid, raised by Mr. Seden, between a wild English Bramble and *R. idæus*, so that it must take its place by the side of the Loganberry. It is mentioned in the "Hortus Veitchianus," p. 105, and is described, though without a name, in *Gardeners' Chronicle*, August 19, 1899, p. 167. I did not include *R. phoenicolasius* because it is not perfectly hardy. It is a very distinct Japanese Raspberry, of climbing habit, with densely glandular, bristly stems and sepals much longer than the very small petals. *J. G. Baker.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 22.—Present: Dr. M. T. Masters, F.R.S. (in the chair); Messrs. G. Massee, J. Douglas, J. Odell, E. A. Bowles, C. Hooper, F. J. Baker, W. C. Worsdell, G. S. Saunders, A. W. Sutton, and F. J. Chittenden (hon. sec.).

Mites in Amaryllis bulb.—Mr. SAUNDERS reported that he had examined the bulb sent to the last meeting from Folkestone, and had found that it was undoubtedly attacked by the bulb mite (*Rhizoglyphus echinopus*). He could see no reason why this mite should not infest Carnations, Tomatoes, Melons, Pelargoniums, Bego-

nias, Cyclamen, Arum Lilies, and Cucumbers, which were also reported to be injured in a manner similar to that in the *Amaryllis*. "As to destroying the pest, I should suggest destroying all the soil the plants are growing in. Soaking the bulbs in hot water of a temperature of 125° Fahr. for about 10 minutes should kill the mites in the soil. I should recommend bisulphide of carbon, and it might be well to try vaporite; the latter is highly spoken of by some persons, but I do not know of any properly conducted experiments having been made with it."

Cucumbers "going off."—These, sent from Botley, were reported upon by Mr. SAUNDERS as follows: "I could find no signs of insects, worms, or mites in the Cucumbers, nor could I detect the mycelium of any fungus. The cellular tissue was much broken up in places, particularly near the nodes of the stems, a condition which looked very much like the work of eelworms, but I could not find any either in the stems or roots. I cannot suggest any reason for the plants 'going off.'"

Diseased Gooseberry shoots.—Mr. CHITTENDEN reported that he had examined the shoots of Gooseberry shown at the last meeting, and had found upon them a few perithecia of the common Gooseberry-mildew, but none of the American Gooseberry-mildew.

Cypripedium malformed.—Mr. SAUNDERS exhibited a curious flower of *Cypripedium*; in which, in addition to other malformations, a second flower was growing in the axil of one of the floral segments. Mr. WORSDELL will report more fully upon it at the next meeting.

Use of destructor refuse as manure.—Mr. F. J. BAKER said that he had found the refuse from a dust destructor in which condemned meat, infected clothing &c., had been burnt, very valuable as a manure. It contained a considerable amount of phosphates, and its effects were discernible after having been applied four years ago, the crops raised having been Vetches, Rye, Peas, and Barley. It was pointed out that the composition of the refuse probably varied very greatly from different districts, and its value could only be ascertained by analysis or by actual trial. The sample shown was in the form of a fine powder, and Mr. BAKER said he had found it very useful for mixing with potting soil.

Uncommon Conifera.—Dr. MASTERS showed specimens of leaves about 9 inches long of the Pine called in certain catalogues *Pinus Malleti*, a name which could not be found in any English list. The leaves enabled him, however, to identify the Pine as one of the numerous forms of *Pinus ponderosa*. He also showed six probably seedling varieties of *Torreya myristica* (= *T. californica*), which he had received from Messrs. CROUX, of Chateaufort, where it is quite hardy, although it is scarcely so in England. The variations were principally in the form, direction, colour, and length of the leaves, and in the habit of the trees. He also exhibited a shoot of the true *Abies lasiocarpa* of Hooker, the species usually grown under that name being a form of *A. concolor*.

Roses dying.—Specimens of leaves and roots of *Roses*, and the soil in which they were growing, were received from Hoddesdon. The *Roses* lost their leaves very early, the Tea *Roses* especially suffering. The trouble was probably attributable to the somewhat heavy soil containing too small a percentage of organic matter, and the addition of farmyard manure was recommended.

Stocks diseased.—Stocks with leaves dying were received from Yateley. They were attacked by the slime fungus, *Plasmodiophora brassicae*, the cause of the clubroot disease in Turnips, Cabbages, and all plants of the Cabbage family.

Mildew Apple shoots.—Apple shoots were received from Gloucestershire badly attacked by the mildew *Sphaerotheca mali*, a trouble that appears to be spreading (see *Journal R.H.S.*, vol. xxvii., p. 736, vol. xxviii., p. 2). Other diseased twigs from Falmouth were taken by Mr. MASSEE for further examination.

Apples spotted.—Mr. HOOPER showed several Cox's Orange Pippins spotted, which Mr. MASSEE took for further examination.

Gooseberry caterpillars.—Some soil from under Gooseberry bushes was received, and Mr. SAUNDERS undertook to examine it in order to discover whether any chrysalids of the Gooseberry saw-fly were present or not.

NATIONAL POTATO.

At the annual meeting of this society the name of Messrs. Sutton and Sons was used in a way which might lead to the inference that they were in sympathy with a proposal made by Mr. Cuthbertson (which received no support whatever) to wind up the society. Messrs. Sutton and Sons have expressed no view other than as concerns public exhibitions. They are not in favour of London shows. They regard the proposed experiments at Wye in 1907 as of real practical importance, and have offered a subscription to the society's funds with a view to supporting such experimental work. *W. H. Adsett, Hon. Secretary N. P. S.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

ANNUAL MEETING.

JANUARY 24.—The sixty-seventh annual general meeting of the supporters of this institution was held on Tuesday last at Simpson's, 101, Strand, London. Mr. Harry J. Veitch, chairman of committee, presided, and the small room in which the meeting was held (the Knights' room) was quite filled with gentlemen interested in the institution. When the minutes of the preceding meeting had been confirmed the secretary read the committee's Annual Report and Balance Sheet for 1906.

EXTRACTS FROM THE ANNUAL REPORT.

During the past year 17 pensioners have died, and one, whose circumstances have changed, has resigned the pension. Of the men who have passed away, four left widows, who, their cases having been investigated and found deserving and eligible, have been awarded the widow's allowance of £16 a year without election under the power conferred by Rule III., 18. Thus at the close of the year there were 14 vacancies and 206 pensioners on the funds. To this number the committee recommend the election of 18 additional pensioners from an approved list of 52 candidates at the annual meeting and election to be held this day, making a total of 224 persons in receipt of annuities for life—the largest number on the funds of the institution since its establishment—and 65 more than there were 10 years ago. It is gratifying to the committee to be able to help so large a number of worthy and deserving people, yet they deeply regret to be unable with their present income to render assistance to more candidates on the list.

The special funds, Victorian Era Fund and the Good Samaritan Fund, still prove of incalculable benefit. During the year £151 has been distributed from the former fund to seventeen unsuccessful candidates who were formerly subscribers to the institution, and in the same period a sum of £108 16s. was given from the latter fund as temporary relief to applicants in urgent distress and need. The grateful letters from the recipients show how much this timely help was required and how keenly it was appreciated. In addition to the amounts mentioned above a further sum of £250 was distributed among the unsuccessful candidates, being a special gift from that well-known friend and generous supporter of the charity for so many years, N. N. Sherwood, Esq., V.M.H. (trustee), who is most gratefully thanked by the committee and beneficiaries alike for his kindness.

It is with much pleasure the committee have to report that the 67th anniversary festival dinner, held in June last at the Hotel Metropole, was one of the most successful in the history of the institution. They take this opportunity of acknowledging their great indebtedness to the Right Hon. Lord Balfour of Burleigh, K.T., who so kindly presided on that occasion.

They also desire to tender sincere thanks to those gentlemen who so kindly acted as stewards, especially to P. Murray Thomson, Esq., S.S.C. (Royal Caledonian Horticultural Society), David W. Thomson, Esq., and W. H. Massie, Esq., whose lists of contributions exceeded in amount any sum previously remitted from Scotland to be added to the chairman's list. The committee again gladly recognise the self-denying labours of the hon. treasurers and hon. secretaries of the several auxiliaries.

In the past year, by the kind permission of the Right Hon. Mary Countess of Ilchester, the beautiful gardens of Holland House were allowed to be opened to the public on the occasion of the great exhibition of the Royal Horticultural Society, a charge being made for admission, and two-thirds of the proceeds thus obtained were allocated to the funds of this institution. They also sincerely acknowledge similar kindnesses from Earl Beauchamp, Madresfield Court, and C. W. Dyson Perrins, Esq., Davenham Bank.

It is with feelings of deep regret that the committee have to record the decease in the past year of many valued supporters, among whom they would mention their esteemed friends and colleagues, Mr. Harry Turner, V.M.H., and Mr. George Norman, V.M.H., also Mr. H. E. Milner, a generous subscriber for many years, and Mrs. Lewis-Hill, who evinced her interest by most kindly remembering the charity in her will. The Hon. Walter Rothschild, M.P., has kindly undertaken to preside at the sixty-eighth anniversary festival dinner in aid of the funds, at the Whitehall Rooms of the Hotel Metropole, on Wednesday, June 26, 1907.

After the report had been read, its adoption was moved by Dr. M. T. Masters, F.R.S., and, on Mr. Iceton seconding it, the report was accepted unanimously. On the proposition of Mr. George Monro, seconded by Mr. Arthur Sutton, Mr. Harry J. Veitch was re-elected treasurer by acclamation. Mr. H. J. Veitch proposed the re-election of Mr. G. J. Ingram as secretary, and this was carried without dissent. The retiring members of the committee were re-elected, and Messrs. A. W. Paul and C. R. Fielder were elected to fill the vacancies

caused by the decease of Messrs. George Norman and Harry Turner. The auditors and arbitrators were re-elected.

Messrs. B. J. Monro and Percy G. White were thereupon elected scrutineers of the ballot, and the meeting was adjourned till the result of the voting had been ascertained.

SUCCESSFUL CANDIDATES.

On the resumption of the meeting the chairman declared the following 18 candidates duly elected:—

	Votes.		Votes.
Perkins, George	2,487	Gooderham, George	2,086
Hollingworth, Eleanor	3,185	Murray, George	2,639
Lowe, Richard	3,015	Sedgley, Jas. W.	2,618
Cole, Sarah	2,989	Capstick, Geo.	2,566
Selway, John	2,924	Baby, Thos. B.	2,554
Campbell, W. S.	2,868	Peacock, Chas.	2,392
Young, William	2,859	Wilder, Ann J.	2,365
Dean, Mary A.	2,774	Alley, Chas. H.	2,318
Dawes, George	2,762	Port, James	2,116

Mr. Harry J. Veitch then remarked that the rules allowed the committee to elect not more than two pensioners beyond the number elected by the subscribers, and the committee proposed on this occasion (assuming that the subscribers present assented to the proposal) to elect George Melome, aged 75 years, who was the highest but one on the list of unsuccessful candidates, had been a life member of the institution for 18 years, and had applied for relief five times; also Mary Ann Hodges, aged 75 years, who had made application for relief on four previous occasions. These proposals were carried by acclamation.

Mr. Veitch also reported that Mr. N. N. Sherwood, writing on the 22nd inst., had sent a cheque for £20, and wished the treasurer and secretary to divide the sum between four of the unsuccessful candidates. Mr. Arthur W. Sutton (Reading) had also that day handed Mr. Veitch a cheque for £20, in order to provide one year's pension for still another unsuccessful incapacitated candidate, to be afterwards selected. Thus there were altogether 21 new pensioners elected.

THE ANNUAL FRIENDLY SUPPER.

After the business proceedings of the day were completed, the committee and a few friends supped together at Simpson's, Mr. Ed. White presiding. On proposing the toast of the "Gardeners' Royal Benevolent Institution," Mr. White spoke of the increased love there was for gardening, as shown by the number of amateurs who follow it as a source of interest or recreation. In connection with this subject, he drew a parallel between gardening and influenza. "Most people get it sooner or later," "It can never again be got quite out of the system," "It shows itself in many different forms," "The attacked are always ready to talk of their own experience." But Mr. White, passing on to the consideration of the future of the institution, said that many of those present were called upon at different times to advise new amateur enthusiasts in gardening. He thought they should make it a rule to append to the more technical advice the suggestion that the client should support the Gardeners' Royal Benevolent Institution. After expressing some disapproval of a State scheme of old age pensions, Mr. White said that in the future their institution would be made more equal to the demands for help by the improved education of gardeners. He did not wish to be misunderstood, as he knew perfectly well that many gardeners were all that could be desired. At the same time the mass, especially those employed in the smaller gardens, needed to be lifted in the social scale, and to be better educated. In this connection he said that it was absurd that gardening enthusiasts should employ gardeners at lower wages than they would give to unskilled workmen. At present anybody, even some who might be worthless and undeserving, could call themselves gardeners. He (Mr. White) read a letter in which a gentleman asked him to procure a fresh gardener, for the other man had actually "sent the celery tops to the kitchen and left the crowns in the soil, and had staked the tall Yews in such a fashion that the Yews appeared to be supporting the stakes." This extreme case was cited to show that gardening should first be rid of such impostors, and that those fully qualified should meet with better remuneration than they got at present.

Mr. Harry J. Veitch replied and said he was pleased to believe that the man mentioned by Mr. White was by no means typical of the body of

gardeners. He was very pleased that the institution was able to do what it is doing, but he would like to find the committee in such a position that they could elect all the candidates for help.

Mr. Geo. Paul proposed the toast of "The Committee," to which Mr. Geo. Monro responded, drawing especial attention to the number of unsigned voting papers (162) which had been received that day, all those votes were lost, and some candidates may have been unsuccessful in consequence. Other toasts included a compliment to the secretary, which was suitably acknowledged by Mr. G. J. Ingram.

LINNEAN SOCIETY.

JANUARY 17.—Prof. W. A. Herdman, F.R.S., President, in the chair.

The General Secretary drew attention to the copy by Jean Haagen of the portrait of Carl von Linné, by J. H. Scheffel, dated 1739, now preserved in the Linnean Museum at Hammarby, which had been presented to the Society by the University of Upsala. Mr. Carruthers and Dr. Murie having spoken, a special vote of thanks to the University for this most acceptable gift was voted unanimously.

The first paper, by Mr. W. Botting Hemsley, F.R.S., F.L.S., on "Platanthera chlorantha, Custor, var. tricalcarata," was, in the absence of the author, read by Dr. Stapf. The specimen had been found at Pax, Sherborne, Dorset, by Miss D. R. Wilson, who sent it to Kew; the ten flowers on the spike were modified as described, the paired sepals were spurred, and the lip was uppermost, that is, the usual twist of the ovary was absent.

The second paper was by the late Mr. Charles Baxon Clarke, F.R.S., F.L.S., entitled "Acanthaceae of insular Malaya," and was introduced by Dr. Stapf, in the absence of Mr. J. S. Gamble, who was unable to be present. This paper was complementary to a similar one, drawn up for the "Materials for a Flora of the Malay Peninsula," now in course of issue by Sir George King and Mr. Gamble.

The General Secretary exhibited some lantern slides from Dr. Lindau's drawings to show the diversity of pollen in this family, and the scheme of naming adopted.

Obituary.

SIR MICHAEL FOSTER.—It is with the greatest regret that we are called on to announce the sudden death of this distinguished physiologist, eminent horticulturist, and, may we add, personal friend. He was present at the meeting of the British Science Guild at the Mansion House



THE LATE PROFESSOR SIR MICHAEL FOSTER, F.R.S.

on Monday last, but died on the following day. He was born in 1836 at Huntingdon, the son of a leading medical practitioner in that town. His medical education was pursued at University College, London, and after practising as a medical man for a few years in Huntingdon, he returned to London as Professor of Physiology at

the college at which he had been educated under Sharpey and others. From thence he proceeded to Cambridge, where he ultimately became Professor of Physiology, got round him a band of earnest students, and founded a "school," if we may so call it, which has exercised a profound influence in the promotion of science both in and out of the University. It is to his influence as a teacher and a leader, and for his many public services, rather than as an original investigator, that he will be longest remembered. What Cambridge now is as a progressive University is in no slight degree owing to the quiet, persistent energy of Michael Foster. He was President of the British Association at the Dover meeting in 1899, joint secretary of the Royal Society from 1881 to 1903, and M.P. for the University of London from 1900-1906. To horticulturists he was well known for his love of gar-

JOSEPH BROOME.—We regret to have to record the death of this enthusiastic horticulturist, which took place, in his 82nd year, at his residence, Sunny Hill, Llandudno, on January 25.

Mr. Broome was extensively engaged in business in Manchester, and for the greater part of his life, was the leading spirit in horticulture in that district, and for many years Treasurer of the Manchester Botanical and Horticultural Society, whose shows at Old Trafford in those days were famous. For many years he resided at Wood Lawn, Didsbury, Manchester, and grew Orchids extremely well, some of his specimens being figured in the *Gardeners' Chronicle*. Especially fine was a plant of *Vanda teres*, with 250 blooms.

Of late years Mr. Broome has resided at Sunny Hill, Llandudno, where he made his garden and Orchid houses his chief pleasure, and their

of the pond, which is the lowest point, pipes have been laid underneath the concrete to a dry well, for the purpose of emptying the pond at any time. I should be glad to know as to the best valve to use for the top of these pipes—one that could be easily manipulated under 2 feet 6 inches of water. *Aquatic.*

MICE ATTACKING VINES: H. C. would like to learn if gardeners find it a common thing for mice to eat the bark of vines. On one vine he knows they have eaten the bark for a foot up from the ground quite round the rod. Will it be possible for that vine to continue to live and yield a crop of fruit? They have eaten several vine stems half-round. What is the best thing to do? The mice are similar to a dormouse, but the colour is that of a house mouse. They have short tails. [It should be easy to catch these creatures in traps. In the meantime protect the



FIG. 36.—VIEW OF THE RESIDENCE OF THE LATE SIR MICHAEL FOSTER, F.R.S., SHELFORD, NEAR CAMBRIDGE.

dening, and his numerous writings on the genus *Ins*, published mostly in our columns and in the *Journal* of the R.H.S. He will also be gratefully remembered as one of those who at the earliest period of the fortunes of the R.H.S. gave his services, and in no slight degree contributed to pull the society out of the slough into which it had fallen. He was a frequent contributor to our columns and to those of the *Garden*. Our own association with him began under sad circumstances, when, owing to the death of his first wife, he was unable to continue his course of lectures at the Royal Institution, and the present writer was hastily called on to complete the course. It was many years afterwards that we were thrown into intimate contact with him at the R.H.S., as above mentioned. Sir Michael leaves a widow, a daughter, and one son practising medicine in the *Araca*.

beauties have frequently been illustrated and described in these pages.

Although engaged closely in his commercial enterprises, Mr. Broome spent a great part of his time in improving the institutions of Manchester and other districts in which he was interested, and especially those which benefited the working classes. He took a leading part in the establishment of the Manchester Warehousemen and Clerks' Provident Association in 1854, and was always active in educational projects. In 1891 he was elected High Sheriff of Carnarvonshire. He was a never-failing contributor to charitable institutions.

ENQUIRIES AND REPLIES.

VALVE FOR USE IN POND.—I am making a pond, the bottom being concrete. From the centre

vine stems by enclosing them in very close-meshed wire netting. Unless we see exactly how deeply the mice have eaten the bark and cortex away, we cannot say whether the vine may live or not, but it will certainly suffer.—Ed.]

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

APPLE TREE INJURED: *Mac.* The larvæ of the Leopard moth, *Zeuzera asculi*.

ARAUCARIAS: *E. A. H.* The cones you send are the male catkins which are generally borne on distinct trees from the female cones.

CUBA. *Enquirer.* The correct address of the Director of the Agricultural Station of Cuba is Senr. C. F. Baker, Jefe del Departamento de Botanica, Santiago de las Vegas. The Estacion Agronomica is situated in that place, which is a few miles distant from Havana. All letters relating to exchange of plants, &c., should be addressed as above. As there are many towns of the same name it is necessary to write Santiago de las Vegas.

DEODAR. *W. O.* We cannot tell you how long the Deodar is likely to live in this country. It was introduced in 1881, and although it does not grow rapidly in all places, we have not seen anything like senile decay in it yet.

GARDENING EMPLOYMENT IN THE UNITED STATES: *C. E. S.* We have submitted your questions to a gardener who has recently returned from a private garden in the United States, who replies as follows: "The wages for under and single-handed gardeners are from \$85 to \$50 a month; head gardeners are paid \$50 to \$100 per month, with house and coal. The demand for labour is better than in the nineties, but for under-gardeners England is still the best. Situations in private places are hard to obtain, and an establishment employing five or six men is considered a large one. A directory of every city can be seen in any drug store. The duties of gardeners are somewhat different to those in this country. Greenhouses are all heated with steam-burning cobbles. Violet frames and similar structures have a foot or more of matting material placed round the frame to guard against damage by cold snaps. Plants in greenhouses are easier cultivated, and about May the syringe is discarded for the hose. Vegetables, including Sweet Corn, Tomatoes, Cantaloupe, Melons, Sweet Potatoes, Capsicums, &c., are grown in the open. Peaches are trained in a bush form, and during their first year of planting will attain a height of 3 feet from a stone. Twenty feet is a common length for a vine to attain on a building in summer. An arbor of vines is found in the majority of kitchen gardens. If you decide to go, buy no special clothes, but take what you happen to have. Leave your hob-nailed boots behind, you will find they have no use there, being too cumbersome. Forget what nationality you are on landing, for you will have to compete against persons of nine or ten nationalities. If you have no friends, you must have £6 in your pocket on landing. Should you have accepted an engagement before landing you must remember there is a law in the United States which forbids this, the penalty being deportation to the place of embarkation if you are found out. The right time to arrive is the third week in March. On arriving the first thing to do is to place your name on every register you can, whether of florist, seedsman or nurseryman."

GETTING-OUT OF BEECH TREE-STUMPS: *J. G. P. C.* The chemical you have heard of is probably strong carbolic acid, which, if poured on the roots occasionally, would cause them to decay, but the process would, we fear, be very slow.

GREENHOUSE TANK: *Ashtonian.* If you cannot localise the leak, your best plan will be to "float" the walls and bottom with a coating of cement. See that it is thoroughly dry before you admit the water.

HELLEBORE BLOTCH: *Mrs. D.* The leaves of Christmas Rose are affected by a fungus, *Conothyrium Hellebori* (Cke. and Mass.), not uncommon in this country, but as yet apparently unknown abroad. The blotches are brown, more or less round, marked in concentric rings by the pustules which enclose the small brown spores or conidia. Pick off and burn all diseased leaves. Syringe the plants with Bordeaux mixture. See *Fungoid Pests of Cultivated Plants*, p. 11, plate 1, fig. 3.

MOVING HYACINTHS FROM BOXES: *S. F. D. H.* If the work is done very carefully, and warm soil is used, it will be quite safe to pot the Hyacinths, and the sooner it is done the better. Do not use any artificial manure, but a little well-decayed stable manure may be added to the soil, and liquid manure made from soot and cow-dung can be applied when the flower stems are in a well-advanced condition. Hyacinths and other bulbs have often been injured through the too liberal use of artificial manures.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* FRUITS: *J. R. B.* 1, Calville St. Sauveur; 2, Gogar Pippin; 3, Duke of Devonshire; 4, Forge. —*E. B.* Northern Greening.—*J. P. R.* Devonshire Buckland.

PLANTS: *J. H. B.* 1 and 12, *Adiantum formosum*; 2, *Polypodium pustulatum*; 3, *Aspidium decompositum*; 4 and 11, *Davallia hirta cristata*; 5, *Lomaria gibba*; 6, *Polystichum angulare*; 7, *Davallia polyantha*; 8, *Davallia filijensis plumosa*; 9, *Nephrolepis pectinata*; 10, *Nephrolepis tuberosa*; 13, *Davallia filijensis major*.—*A. F.*, *Midlothian*. 1, *Cypripedium Lathamianum*; 2, *Cypripedium Hierni* (*Chamberlainianum* × *Lawrenceanum*); 3 and 4, *Cypripedium Leeanaum*.—*C. E. F.*, *Lycaste costata*.—*T. N.* 1 and 2, probably *Phoenix dactylifera*; 3, *Chamaerops* sp., perhaps *C. humilis*; 4, not *Vanda* but *Angraecum sesquipedale*; 5, the young state of *Cupressus pisifera*, the *Retinospora squarrosa* of gardens; 6, *Chamaerops Fortunei* probably.—*J. W.* 1 and 3, *Cupressus nootkensis*, commonly called *Thuopsis borealis*; 2, 4 and 5, *Cupressus Lawsoniana*.

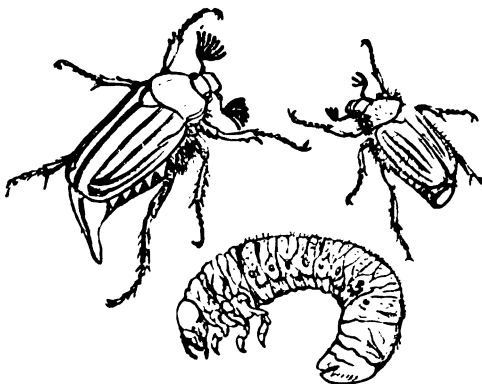


FIG. 37.—THE COCKCHAFER, OR MAY BUG, AND LARVA.

GRUBS EATING ROSE ROOTS: *A. S.* The grubs you send are the larval stage of the cockchafer, or may bug, fig. 37. The best plan to rid the land of them is to stir up the soil and allow poultry, especially ducks, to devour them. Encourage wild insectivorous birds, such as starlings and rooks, to feed on them.

NATURAL SELECTION: *X.* As the article in question was not inserted in the *Chronicle*, and so much has already been said relating to it, we cannot, especially in the crowded state of our columns, give further space to it. The subject is to be brought forward again at the R.H.S., when you may have an opportunity of again making known your views.

ORCHARD MAKING: *M. W.* The articles were published in our issues for January 20, February 17, and March 10, 1906. Copies can be had from our publishing department.

PALMS: *Lexden.* It will be better to defer the repotting until March or April, because the roots will then be able the more quickly to re-establish themselves.

PLANTING OF COLCHICUMS: *B. L.* The depth at which corms of Colchicums should be planted depends to a great extent on the nature of the soil. If this is of a heavy nature a covering of

about an inch will be sufficient. In sandy or light soil they may be planted at a depth of 3 inches or even more than this below the surface. The principal conditions they require are to be planted where the corms will get thoroughly ripened during the summer months, and yet get plenty of moisture during the growing season. When established and doing well it is advisable to leave them alone, for they do not like to be disturbed very often. Clumps of several corms growing together always produce plenty of flowers, whereas if taken up and separated and planted singly, it takes two or three years before they again commence to flower freely.

PUNNET OF SEAKALE: *T. W. C.* An ordinary punnet of Seakale at Covent Garden Market should weigh about 2 lbs.; some may be rather a little over that weight. We have also seen Seakale put up in 1 lb. punnets, for sending to certain provincial markets.

RHUBARB FOR USE AT CHRISTMAS: *F. J. G.* On Tuesday, November 4, 1902, the Royal Horticultural Society granted an Award of Merit to both Messrs. Sutton & Sons, of Reading, and to Messrs. Jas. Veitch & Sons, Chelsea, for a variety of Rhubarb known as Christmas. It was stated that it made its roots in the summer and developed its leaves in the autumn. The petioles shown at the November meeting were grown without protection, but in hard weather tubs or boxes should be placed over the crowns. This variety can easily be grown so as to be ready for use at Christmas. Daw's Champion is another excellent variety for early forcing; it received an Award of Merit from the R.H.S. on February 13, 1900, as a forcing variety, and later a First Class Certificate from the same society for earliness and general excellence. After being forced, the crowns should be divided and planted in the open, being allowed to remain undisturbed for three years, when they will be ready for forcing again. A good plan is to plant three rows, and to force the plants of one row each year, replanting a fresh one to take its place, which will thus be ready for lifting the third year following.

TULIP AND DAFFODIL BULBS: *F. J. G.* These should not be forced a second time, but you might plant them in some suitable place in the pleasure-garden, where the bulbs may have an opportunity of regaining vigour and size.

VIOLETS DISEASED: *C. S. and J. R. F.* The plants are attacked with a fungus disease. Burn all the affected stock, and do not plant violets on the same spot for several seasons. If possible, obtain new plants from a distance. Thoroughly cleanse the frames in which they were forced with carbolic acid and warm water.

WAGES DURING ILLNESS: *Head Gardener.* The head gardener being considered by the law to be a "menial" or household servant, your employer is not within his rights in withholding from you part of your wages for six days' illness in eight years, during which six days you were unable to discharge your duties. In any case, such treatment is as harsh as it is unusual. Write to the Executive of the British Gardeners' Association. The Secretary's address is Talbot Villa, Talbot Road, Isleworth.

WEED IN LAWN: *C. W.* The specimen was shrivelled and no flowers were present, but we believe it is one of the chickweeds, probably *Cerastium vulgatum*. Give the lawn a dressing of sulphate of ammonia. In the series of experiments on pasture land conducted at Rothamsted it was found that ammoniacal manures were detrimental to the development of this weed.

WORKMEN'S COMPENSATION ACTS: *E. J. V.* Certainly the employees in nurseries and market gardens have the protection afforded by these Acts.

COMMUNICATIONS RECEIVED.—*H. J. H.* (Is. for the R.G.O.F.)—Herbert Hoare, H. Maw, and D. Malton, your letters have been forwarded to the President of the Société Française d'Hort. de Londres.—*J. T.* (many thanks for donations of 2s. 6d. for R.G.O.F.)—*T. J. G. P. M.*—*A. J.*—*D. H. H.*—*A. G.*—*G. S. & Co. Ltd.*—*Lexden*—*A. F.*—*W. G. S. C.*—*H. W. H. M.*—*W. D.*—*J. N.*—*T. W. B.*—*H. J. C. V.*—*E. H. J.*—*W. B.*—*C. W. T.*—*H. C. J.*—*T. J. Mrs. E. V.*

For Market and Weather Reports see page xvi.

THE Gardeners' Chronicle

No. 1,050.—SATURDAY, February 9, 1907.

CONTENTS.

Apiary, the	87	Peradeniya Botanic Gar-	88
Asparagus falcatus ...	82	dens, Ceylon	91
Begonia Gloire de Lor-	94	Plant nomenclature ...	93
raine seedling	94	Ribes aureum as a stock	93
Books, notices of	86, 89, 90	Rock-garden at Leal-	84
Botanical Magazine ...	89	holme Lodge, Whitby	84
Calanthes, deciduous ...	90	Rosary, the	95
Carnations, winter-	93	Saxifraga Boydii ...	89
flowering	93	Scion and stock, the ...	83
Cattleya fly, the	94	Senecio pulcher ...	83
Christmas Roses	94	Societies	88, 95, 96
Cobnuts and filberts ...	51	Sweet Peas, the culture	90
Colonial correspondence	83	of	90
Country garden, the ...	83	Tar as an insecticide ...	94
Florida garden, a	91	Valve for use in pond ...	96
Foster, Sir Michael, the	89	Vegetables at Shrews-	93
Hydrangeas, blue	93	bury	93
Japanese gardening ...	86	Vines injured by mice ...	93
Lilies, blue water	95	Water lilies, blue	95
Obituary—	96	Week's work, the—	87
Wallis, John	96	Flower garden, the ...	87
Orchid notes and glean-	82	Fruits under glass	86
ings	82	Hardy fruit garden ...	87
Parks and gardens, pub-	86	Kitchen garden, the ...	86
lic	86	Orchid houses, the ...	86
Peas grown on turves ...	94	Plants under glass ...	87

ILLUSTRATIONS.

Asparagus falcatus in flower ...	82
Avenue of Palms in Ceylon Botanic Gardens; Pera-	
deniya (Supplementary Illustration)	
Calanthes in flower, a house containing ...	91
Filbert shoot showing the fruit bearing buds ...	81
Nut weevil, the	81
Rock garden at Lealholme, Yorks ...	84
Water scene in a Yorkshire garden ...	85
Wood leopard moth, the	96

COBNUTS AND FILBERTS.

TO be successful in nut-culture, the trees or bushes should be planted in a situation where the atmosphere is usually pretty dry and the soil perfectly free from stagnant moisture. Land which is freely intermixed with stones, having only sufficient soil to answer the purpose of a rooting medium, or a rocky limestone, or a soil freely intermixed with shaly fragments, such as the Kentish rag-stone, will all suit a nut crop perfectly. Rich or damp ground excites the trees into making too much growth, and they are then seldom very fruitful. Some land which is useless for ordinary fruit-culture is capable of yielding good nuts. Ground which has not been previously dug up should be well stirred and either trenched or bastard trenched, and if of poor quality a little manure intermixed with the soil would induce the trees to make a good start. A distance of 10 to 14 feet between each tree is necessary for the trees to develop properly, but there are certain dwarf-growing varieties that might be planted closer together.

Young trees having a clean, smooth stem about 18 inches in length are the best, and those raised from layers preferable. These are easily obtained by layering two-year-old shoots and making a parallel incision on the under side of the shoot, where it is in contact with the soil, firmly fastening it down with a strong peg, and covering the operated part to a depth of 6 inches with soil. Generally speaking, layering is performed in March, but it should preferably be done in autumn. The young trees can then be detached from the parent plant in from 10 to 12 months after the operation; they should be carefully examined in order to remove all eyes liable to produce suckers.

Suckers are planted in place of layers by some growers, but trees so raised are predisposed to perpetuate themselves by this means.

In the obtaining of trees, much time is saved by purchasing them from a nurseryman who has given them early attention in pruning. Well-rooted trees, with evenly-distributed branches, soon establish themselves and commence bearing. Certain varieties are more precocious than others, while those kinds

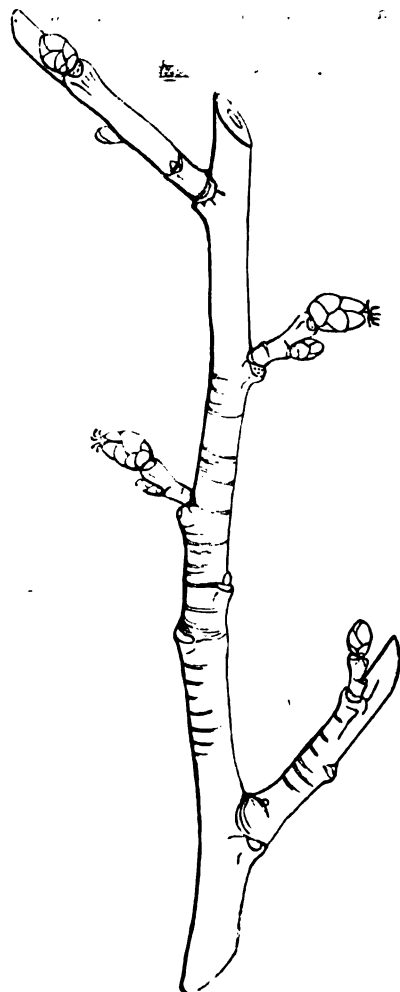


FIG. 38.—FILBERT SHOOT PROPERLY PRUNED, WITH SHORT SPURS BEARING THE FEMALE FLOWERS.

which fail to crop freely, owing to their greater vigour, may be grafted on a weaker stock in order to induce fruitfulness.

Far heavier crops of nuts would be produced than are now general if earlier and annual attention were given to the work of pruning. In many cases the trees have never had a branch shortened, or one removed since

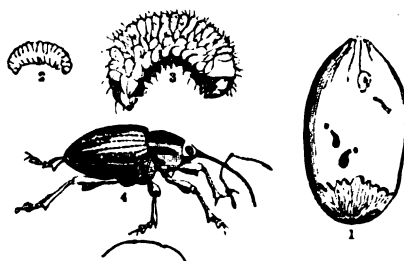


FIG. 39.—THE NUT WEEVIL: *BALANINUS NUCUM*.

they were planted. It is quite as necessary to prune and thin nut bushes as other fruit trees. Nuts respond well to good treatment, and will yield a return from ground that some would describe as worthless.

Pruning and training should be commenced when the trees are young. In order to regulate the branches the best method is to

place a wooden hoop inside the branches, carefully pressing the branches outwards to the desired position, and securing them to the hoop. Six shoots will form the foundation of a good tree. Any vigorous shoots should be shortened to equalise the flow of sap. The small "spray growths" and short twigs and spurs are the fruitful portions, consequently these should be only shortened or left untouched. All strong-growing unfruitful wood must be entirely removed, and those shoots which are inclined to grow towards the centre of the tree. Suckers must be vigorously removed.

Old trees may be rejuvenated by severely shortening the branches down to a point where there is a promising shoot. By the exercise of a little skill, such old trees may be induced to form well-balanced heads again, but it would be much better to keep them shapely and fruitful from the commencement, and always within reach of the cultivator.

In the course of a few weeks the distribution of the pollen from the male catkins will be taking place, and that is the best time for carrying out the pruning. A considerable number of these male catkins may be cut away, and placed amongst other trees where there is a deficiency, so as to ensure the pollination of the flowers. The male catkins of the Hazel will also assist in obtaining a good "set" of nuts.

Manuring may be practised with good results when the trees have attained to their full bearing-size, but a little care should be used in its application. Farmyard manure is best, although the refuse from tan-yards will also produce excellent results. It should be applied early in the autumn, and when the leaves have fallen, the whole being lightly dug into the ground; one or two applications of liquid manure, after the nuts are set, will aid much in increasing their size and quality.

The nut weevil (see fig. 39) is a destructive insect enemy. The female makes her appearance in April and May, visiting the individual nuts, depositing an egg in each. The grub is hatched out in 10 days, and commences feeding on the kernel, which it leaves when fully developed, by perforating a hole through the shell. The grub then buries itself in the ground, changes later into a pupa, from which the weevil emerges to ascend the trees again, thereby forming the cycle of life.

The distinction between the Cobnut and Filbert is that the husk of the Cobnut is shorter than the nut, and that of the Filbert longer than the nut.

Varieties.—Perhaps the most prolific and certain bearer is the Kentish Cob. Prolific Dwarf Cob is of low growth and suitable for small gardens. This variety produces a profusion of male catkins. Merveille de Bollwyler is a strong grower, and a good cropper, the nuts being large. The Red Filbert is the best flavoured of all nuts, but the tree is not a satisfactory cropper. Cosford is a Filbert of good flavour, having a very thin shell; this kind is well suited to plant amongst those which produce catkins sparsely, it being a variety which produces them with great freedom. Other varieties worth growing are Atlas and Bergeri Cobs, Early Prolific, Duke of Edinburgh, and Kentish Filberts W. H. Clarke, Aston Rowant, Oxon.

ASPARAGUS FALCATUS.

Of the numerous species of *Asparagus* cultivated at Kew, the subject of the illustration at fig. 40 is certainly the finest. It is growing in the great Temperate House near the foot of the spiral staircase at the north end of the building, where it has assumed immense proportions, covering in a dense thicket two large columns to a height of 30 feet and also partly clothing the spiral staircase and ascending along light strings right up to the roof. When in bloom in August and September of last year, the whole plant was covered with flowers, similar to the single growth depicted in the illustration, while the powerful perfume emitted by the flowers pervaded the whole house.

The plant is of twining habit, the growths persisting for several years, and retaining their leaves for a like period. It is usual for the plant to send up a crop of strong succulent growths from the base early in spring, which often reach a length of 50 or 60 feet in a single season. These become hard and woody as they ripen, and the short reflexed "leaves" harden and become changed into strong hooks, and so assist the plant in its climbing habit and also serve as a means of protection. Numerous lateral growths are later on produced, from which the so-called leaves (cladodes) and flowers are produced. The cladodes are from 2 to 4 inches long and about $\frac{1}{4}$ inch broad, falcate, and of a light green colour. The flowers are pure white, $\frac{1}{4}$ inch in diameter, with bright red anthers, and are disposed in loose racemes, which are from 2 to 5 inches in length and 1 inch in breadth. The fruit is a globose berry, and dull brown in colour. The plant is a native of tropical Asia and Africa, and was introduced into cultivation by Mr. T. Cooper (of succulent plant fame) when collecting plants in South Africa. A fit companion to the above-named species, and one which bears the name of its discoverer, is *A. Cooperi*, a large specimen of which is growing in near proximity to *A. falcatus*. It is of more slender habit, but many of the growths reach to a height of 30 to 40 feet. Other species worth mentioning, which are used for clothing pillars, &c., at Kew, are:—*A. aethiopicus*, *A. medeoloides*, *A. myriocladus*, *A. retrofractus* var. *arbores*, *A. racemosus*, *A. plumosus*, *A. africanus*, and *A. Duchesnei*, a new comer from the Congo Free State, and one of the finest species in cultivation. For cultivation in baskets, I know of nothing finer than *A. Sprengeri*, while amongst others specially suitable for such cultivation are:—*A. crispus*, *A. declivatus*, *A. sarmentosus*, and *A. umbellatus*. C. P. Raffill.

Calogyne miniata Lindley.—The *Chelonanthus miniata* of Blume, and a very rare Javan species of small growth bearing racemes of five to seven bright red flowers. Figured from the collection of the Baron von Furstenberg.

Epidendrum aurantiacum.—The well-known species from Guatemala, with the growth of *Cattleya Skinneri* and orange-scarlet flowers.

Lalio-Cattleya Berthe Fournier, var. *obscurapurpurea* (L.-C. *elegans* × *C. Dowiana aurea*).—Flowers of an intense purplish-red, with a lilac shade in parts of the petals. Bloomed by M. F. Lambeau. The original L.-C. *Berthe Fournier*, recorded as having been raised between L.-C. *elegans* and *C. aurea*, was obtained between L.-C. *Schilleriana* and *C. aurea*, by the



ORCHID NOTES AND GLEANINGS.

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDEES."

THE first issue of this work for the year 1907 gives illustrations and descriptive notes of the following 13 Orchids:—

Cattleya Fabia, var. *Marie de Wavrin*.—A charming hybrid raised by M. Peeters, of Brussels, between *C. labiata alba* and *C. Dowiana aurea*, and for which an Award of Merit was given at the Royal Horticultural Society, October 27, 1903. Varieties of the same hybrid are in the collection of the Marquis de Wavrin, and the one figured in that of M. Lambeau, president of the Floral Committee of Brussels. Flowers white, with a marbling of rose colour in the centre and on the margin of the lip, which has an orange-coloured base.

Cattleya Warszewiczii Mme. *Melanie Beyrodt*.—A fine pure white variety, with purple front to the lip, first shown by Herr Otto Beyrodt, of Marienfelde, Berlin, at Holland House, July 12, 1904, when it gained a First-Class Certificate. The plant figured flowered with M. Lambeau.

FIG. 40.—ASPARAGUS FALCATUS IN FLOWER.

[Photo by C. P. Raffill.]

evidence of the flowers, and by the fact that that hybrid which is commonly imported with the darker-coloured L.-C. elegans often goes under that name. Major G. L. Holford, of Westonbirt, Tetbury, however, raised the properly authenticated cross between L.-C. elegans and C. Dowiana aurea, and received awards for several of his best varieties, and at the same time proved the error in the original Continental form. The variety figured resembles Major Holford's.

Lalio-Cattleya Fäulcin Lotte Abeken.—A very showy hybrid, with purplish-rose sepals and petals, the bases of which are white. Lip ruby-purple, with an orange tint at the base. The cross (L.-C. elegans × C. labiata) has been previously named L.-C. Schutzeriana, L.-C. Wilhelmina, and L.-C. Capt. Percy Scott, and with regard to the last named, the same remarks as to parentage given under L.-C. Berthe Fournier applies, for it is evident the L.-C. Schilleriana was the form used, and not L.-C. elegans.

Ornithidium coccineum.—A pretty species from Central America, with red flowers.

Odontoglossum Boddaertianum, var. *arachnoides*.—A slender species of the O. constrictum class, and probably nearest to O. aspidorhinum Lehm. Sepals and petals yellow, striped with brown; lip white, with purple spots.

Odontoglossum Thompsonianum, var. *de M. Oscar Fanyau* (crispum × Edwardii).—First shown by W. Thompson, Esq., Walton Grange, Stone, at the Royal Horticultural Society, April 25, 1906, when it obtained a First-Class Certificate. The present variety bloomed in three years from the sowing of the seed, it is said, in the collection of M. Fanyau, Hellemes, near Lille. The original variety had the sepals and petals almost entirely of a claret colour; the variety figured has the outer third of the segments of a light rose colour.

Renanthera lmschootiana.—A very showy species from Burma, with blood-red flowers. A full-page illustration of it was given in the *Gardeners' Chronicle*, January 15, 1898, p. 41.

Renanthera storici.—Allied to R. coccinea, and with flowers of a dark red colour. Native of the Philippines.

Selenipedium torconense (Pearcei × Lemoinierianum).—Raised and flowered by M. Lemoinier, of Lille. A graceful hybrid, with whitish flowers marked with brown, yellow, and purple, the long twisted petals plainly indicating S. Pearcei.

Sophro-Lalia Psyche (L. cinnabarina × Sophronitis grandiflora).—Raised by Messrs. Charlesworth & Co., Heaton, Bradford. Flowers reddish-scarlet.

HARDY FLOWER GARDEN.

SENECIO PULCHER.

IN its season of flowering, in the late summer months, this remarkable Groundsel is well nigh unique, and as such deserves to be liberally and specially cultivated. This species, quite unlike many of its congeners, is a shy seeder, and only rarely produces seeds in this country. Added to this the plant does not lend itself to division so freely as do some plants, hence there is the greater need for the adoption of special means for its propagation, namely, from root cuttings. Root cuttings may be obtained from any old plant, and a single plant will yield 50 or 100 of suitable root-pieces, which should be about an inch in length. It is necessary when cutting up the roots into short lengths to see that they are laid so that they can be planted the right way up. When a sufficient number of root portions are ready a well-drained pot 5 inches in diameter should be filled to within an inch of the top with sandy soil; the root-pieces can then be arranged nearly close together around the interior of the pot and the central portion filled with soil. Water thoroughly and place the cuttings in a warm greenhouse. In about five weeks

from their insertion the apex of each cutting will be showing numerous growths, and a little later the plants may be potted singly and otherwise treated as separate plants requiring care and attention. No other method produces such fine flowering rosettes as that above described. E. H. Jenkins.

THE COUNTRY GARDEN.

BORDER PLANTING.

IN my previous article I spoke of the uninteresting monotony of many of our English gardens, occasioned by the repetition of the varieties of plants seen in them. I want now to touch on another kind of monotony that makes itself apparent in too many gardens. I mean the monotony that arises in finding the same varieties of plants in all sorts of positions in the same garden. We must all have noticed it from time to time, and it is an error that can very easily be rectified when once it is realised.

I cannot agree with those purists who declare we should have but one group of a particular plant in a border. I would say, repeat it there, as often as you wish; let it, if you will, become a striking feature, whatever it may be, in its own border—even in two or three borders: if it be a very large garden. But be content with that. Do not introduce it here, there, and everywhere, all over the garden. I have seen the beautiful white *Campanula persicifolia* (the cup-and-saucer variety) finding a place in every border and mixed bed in an old garden, used until one longed to see something change place with it to relieve the unrelieved sameness of idea. Ah, and I have seen it often and often with different plants to a less extent. To use plants in this fashion is to take away all distinction and character. Again, I would say, it is most unwise to lift and divide the plants of a border, and with the surplus specimens thereupon to plant some other border. It is often done, and the result is, that the second is a counterpart of the first. What ought to be done under these conditions is to allot certain varieties to one border, and use them freely, and different ones for the other; thus I would use up all the *Phlox decussata*, say, in one border, and not allow it to appear at all in the other, and so on. A far more characteristic and distinctive garden will be the result.

A few years ago, writers on gardening topics waxed eloquent on various colour-schemes. There was to be a gradual leading up to the different colours—thus, orange was to be placed in juxtaposition to red, and we approached blue through yellow. But, if this idea were largely adopted, and it came to be a kind of rule of thumb, another, and quite artificial cause of monotony would exist. There are colours difficult to place, and of course in planting any border we shall have to bear in mind this question of colour-harmony, or pleasing contrast. But Nature gives us a wide latitude in this matter, and with a little care no crude clashing effect will be produced.

I look upon a bright, vivid rose colour as one of the most valuable to use generously, especially for summer effect. There is a translucency and gaiety about it that the thicker and more solid red does not yield. It is a colour I would have run riot during August through a small garden, plentifully supported by white, and in a larger garden rose-coloured plants, with their white companion plants, may be the feature of some particular portion, not of course excluding other colours, but used—this rose and this white—so plentifully in their particular portion that a really striking effect could be obtained.

Now, early in the year, is the time to give these considerations due weight, so that, if needed, annuals can be reared to play their part in the general scheme.

Among the perennials double rose-coloured Hollyhocks, Phloxes, various Dianthus, Poten-

tilla formosa, Roses, and others make a splendid foundation, and many of the annuals ably uphold them and increase the grand decorative effect. Sweet Peas, *Agrostemma*, *Asters*, *Linum grandiflorum*, *roseum*, *Stocks*, and *Phlox Drummondii* may be mentioned as among the most valuable.

In bedding out, one of the main considerations is to secure plants that shall flower over a prolonged period. The same consideration should receive due weight in planting a perennial border. When this is neglected, it often follows that the border lacks colour at a season when it is most necessary that it should be a brilliant mass of flowers. This point is one of the most important in selecting plants for a mixed border. Such a border ought to be far more beautiful and fifty times more interesting than the most elaborate bit of bedding. Think of the variety of plant life, of form, of habit of growth, of degree of maturity, and what these things mean to the real flower-lover! Make your foundation, then, back and front of your borders, of plants that flower over a really long period; they are to be found among the hardy perennials. Use them generously, and then for setting may come smaller quantities of the beautiful, but fleeting, subjects. *Practical Gardener*.

COLONIAL CORRESPONDENCE.

NEW SOUTH WALES.

RICHMOND RIVER.—The following extracts are taken from a private letter:—

Some of the forest trees here are magnificent, one tree especially, the "long Jack" or *Flindersia Oxleyana*, having lovely racemes of pure white flowers. Another fine shrub is *Helichrysum diosmifolium*, with pure white terminal bracts. *Acacia decurrens* has looked beautiful. A tree that grows well here, and is in great demand for tanning, is *Acacia pycnantha*—the best of all the Wattles for tanning. As to *Dendrobium speciosum*—the rock-lily, as it is called here—if you could make it flower in your houses as it flowers with us you would be delighted. Here it grows on the ground, on the trees, stumps of wood, in fact, anywhere you like to throw it down, no preparation of soils and situation being required.

In reference to the Pines they are planted 8 feet apart and 2 feet from plant to plant. They start producing fruit 18 months afterwards. When fruit is ripe the old plant throws out suckers, three or four the first season, and all bear fruit afterwards for several years. Then the plant becomes worn out, and suckers are planted between the rows. When these are established the old ones are rooted out, so that the ground is now idle. The third, fourth, fifth, and sixth years' growth produce splendid Pines, when, as I consider, the plants are in their prime.

I have grown some very fine Tomatos in 7-inch pots, and the old variety Matchless has been excellent. I had a splendid show of Cactus Dahlias: Mrs. Turner is a lovely yellow, and Earl of Pembroke I think one of the best dark; Starfish is most brilliant, standing 8 feet high, and I counted 27 fully expanded flowers on it lately. These are all good: Mrs. Carter Page, Vesta, Badinia, Olive, Cinderella, and Mrs. Sanders. F. A. K.

THE SUGAR CROP IN QUEENSLAND.

THIS has been a grand season for Queensland, indeed for the most of Australia, and the best for 25 years. Cane sugar yields in ordinary years from 12 to 15 tons to the acre, but this year from 40 to 50 tons per acre have been secured. Some of the crop will not be harvested for want of labour. This season a cane cutter can make 15s. a day, but he is not satisfied even with that.

PINEAPPLES IN QUEENSLAND.

I GROW a few Pineapples for private use, about 320 comprising the whole of my crop. At the beginning of last winter a few small plants, planted only a few months, were in fruit. One

of these, a smooth Cayenne, was developing an enormous crown quite out of proportion to the size of the fruit, which was not more than a pound and a half in weight, so I cut off the offending crown, when the fruit began to swell as abnormally as the crown had done, and when ripe yielded a fruit weighing nearly four pounds. When I saw the progress this fruit was making, I cut the crowns off the other plants, and they all responded and swelled up; indeed, the "pips" of the Queen were nearly as smooth as those of the Cayennes, and the fruits were nearly as wide at their top as at their middle. By mid-winter most of the plants began to show fruit, and as soon as their crowns were 2 inches high, they were cut off, with the exception of a few of the bottom leaves. None of the smooth varieties are ripe (December 8), but I have been cutting fine Queens for the past month. Pines and Papaws (*Carica Papaya*) are the only fruits we have for use at present. I had a large crop of Peaches, but when the flying foxes found them, they cleared them nearly all off in two nights. *Granadilla* (*Passiflora quadrangularis*) will soon be in season. The foxes have now turned their attention to the Mangoes, which are ripening, and as the crop is small the foxes will have the biggest share. I informed a neighbour how successful I had been with seedling Pineapples. I had only 11 seedlings, and one has turned out a splendid Queen—sweet, rich, and with no core, but he did not consider that a success. He thought all the 11 should have been good varieties. The heaviest fruit weighed six pounds, but I have no doubt on scrub land it would have scaled 10 or 12 pounds. Our black soil is not suitable for either Pineapples or Grapes. One of my Pineapples was fastigiated, and measured 26 inches from corner to corner. *D. Buchanan, Mackay, Queensland.*

A ROCK-GARDEN IN NORTH YORKSHIRE.

LEALHOLME Lodge, a modern structure situate on the banks of the River Esk, about 10 miles from Whitby, on the Stockton and Whitby branch of the North-Eastern Railway, is one of the residences of Sir Francis Ley, Bart.

A more ideal spot for a rock-garden than the above would be difficult to imagine. Situated on the rocky banks of the River Esk, parts of which, to say the least, are majestic, the portion treated extends to rather more than half a mile in length. The work has been in course of construction for considerably over 12 months by Messrs. James Backhouse & Son, Ltd., of the York Nurseries, who have carried out the wishes of Sir Francis Ley in a highly satisfactory manner. Many hundreds of tons of earth and rock have had to be moved (the latter by the aid of ropes and blocks) at a considerable outlay. The formation of winding paths along the top and bottom of the slope with ascending and descending steps, intermediate walks, rustic bridges, and seats at intervals, give the work a most characteristic appearance. Owing to the great height of the bank, ranging from 60 to 100 feet from the bed of the river, and the steepness of the slope, the clearing away of the woodland undergrowth and the erection of a rustic fence as a protection to the uppermost path has been attended with a considerable amount of risk to life and limb, but not a single accident has occurred. The river hurrying along its course to the sea, here and there dashing itself against the huge boulders which lie in its way, and creating masses of boiling foam, adds still further to the beauty of the scene. A goodly portion of the planting has been completed; some 400 varieties of choice Alpine plants, suitable flowering shrubs and climbers, Conifers, and many varieties of suitable Ferns, along with about 20,000 bulbs, now find a home in this delightful glen. *J. Snell, York.* [We are indebted to the courtesy of Sir Francis Ley for the opportunity of giving two illustrations of this fine garden, which suggest pictures by Hobbema or Ruysdael.—ED.]

THE ROSARY.

CULTURAL DETAILS FOR FEBRUARY.

ALL delicate and tender varieties should be well protected during severe weather. No pruning should yet be done in the open, however advanced the condition of growth may be, but in the case of half-hardy climbing varieties such as *Gloire de Dijon* and *Cheshunt Hybrid*, that enjoy the protection and shelter of a sunny wall, they can, if a few early blooms are desired, be pruned moderately at the end of the present month, but care must be taken to see that plenty of dormant basal eyes remain. The general pruning of Roses should be left until March and April, and, as most Rose growers are aware, those of moderate growth can be pruned closer than those of more vigorous habit. If some of the best ripened and strongest shoots of robust varieties that were formed last summer be pegged down by their points to the soil a few at a time during the early spring months, a good succession of flowers will be thus obtained. If the soil and the surface mulching have been beaten down by heavy rains, the ground should

pots. Good mellow loam, with a little rotten manure and some sharp sand, will suit their requirements. Make the potting quite firm, and, where possible, bring the union of the graft well under the soil.

Herbaceous grafting, both on the *Manetti* and on the seedling briar stocks, should now be well advanced, and with care few failures should be recorded. Shift the most forward plants, as they develop, from under the frames into the body of the house, and well up to the light on stages or benches over the hot-water pipes.

The earliest forced Roses will, by the middle of this month, be showing their flower buds, and with an increase of sunshine the temperature may be allowed to reach to 60°, with a little increased ventilation. Maintain a moist atmosphere, and syringe well among the foliage to cleanse it and keep down green fly. Allow the leaves to dry at some time during the day to aid respiration. Late potted Roses will now be growing freely. The *Teas* and *Hybrid Teas* can be placed at the warmer end of the house, where the temperature is about 55°. Give a little ventilation during the middle of the day,



FIG. 41.—VIEW IN SIR FRANCIS LEY'S GARDEN AT LEALHOLME, YORKS.

be lightly forked to allow the air to penetrate the soil, but care must be taken not to disturb the roots during the operation. On beds not yet permanently planted, a nice effect can be made with a few half standard plants of the varieties *Captain Christy* or *La France*, disposed at equal distances, with a carpeting at the base, of low, horizontally-trained plants of *Vicomtesse Folkestone*, *W. A. Richardson*, or *L'Idéal*. An equally good effect can be had with half standard specimens of dark varieties, such as *Dupuy Jamain*, *Prince Camille de Rohan*, or *General Jacqueminot*, with a ground planting of *Thalia*, *Aimée Vibert*, and *La Marque* trained like the preceding. Dwarf *Teas* and *Noisettes* can be planted out of pots later, during May, when all danger from frost is over, and selection should be made of plants carrying long, well-ripened shoots. Arches and festoons of Roses are a very pleasing feature where they can be trained or introduced to form a distinct effect and break up the formality of the beds. There is a wealth of choice amongst the rambling varieties, such as *Paul's Pillar*, and others.

The early batch of grafted Roses in 60-size pots will now be ready for re-potting into 5-inch

and, before closing the house, a light syringing of water overhead. Before and after the buds begin to show in the early batch of plants, weak liquid manure can be given once or twice a week, and for a change of stimulants a sprinkling alternately of *Clay's manure* or *Canary guano*. This is a wonderful help, and, in the case of root or pot-bound plants, quite a necessity. Hybrid Perpetual Roses require from eight to ten weeks, when not hard forced, to bring them into flower; *Teas* and *Hybrid Teas* from seven to nine weeks. It must be remembered that the harder the plants are forced, the poorer will be the quality of flowers; therefore, in order to ensure a succession of the best quality flowers, the heating and ventilation must be regulated to comply with these conditions. It is unwise under any circumstances, except with solar heat, to have the temperature above 65°, and then only at certain times of the day, accompanied by plenty of moisture. *J. D. G.*

COLOURED PLATES.

THE December number of the *Rosen Zeitung* contains coloured figures of *Etoile de France*, H.T., sent out by *Pernet-Ducher* in 1904:

flowers rich crimson; and Mme. Jules Graveriaux, a Tea Rose, sent out by Messrs. Soupert & Notting, of Luxembourg: flowers flesh-coloured, deepening into pink. It is said to have originated from a cross between Rêve d'Or and Viscountess Folkestone.

VEGETABLES.

INTERCROPPING.

THERE are not many gardeners in private service who do not practise this method, if generally tentatively, and sometimes as a protection against the ravages of the wireworm, as when he plants or sows Lettuces alternately with the rows of Carrots and Parsley. But few adopt the method with most of their crops. It has, however, advantages in gardens of every

of the passage of a man in gathering the produce without injury to the adjoining crop. If sound Pea sticks are employed, no harm results to the haulm and the rows act as wind breaks, and the Pea plants pod splendidly owing to the freer access of sun and air on all sides; moreover, sparrows, crossbills, and other birds have much less covert than in dense quarters of Peas. In some parts of the garden not heavily manured, Broad Beans may be employed as dividing lines; in others, Runner, climbing French, and Wax (Butter) Beans may find similar employment. The Globe Artichoke, Cardoons, and Brussels Sprouts may also be employed in this way.

Some of the crops I have named do not endure for longer periods than two, three, or four months, whereas the adjoining land may be under a crop or crops seven to nine months, and the clearance of the land of the more fleeting

shoots are sure to attain to large size and the stools increase rapidly in strength.

There are many amateurs who are scared by the supposed expensiveness of Asparagus culture, and certainly the older practitioners believed the plant could not be grown successfully without immense quantities of dung being placed under it, and at depths where the roots could scarcely be expected to reach the manure. Trenching the land if it will bear it is good practice, and a layer of rich manure should be placed under the first and second spits; and the soil at the bottom of the trenches should be turned over, if the land is of a retentive nature and not properly drained. In sandy loams and light soils generally, this last is not to be recommended. Surface manuring should be practised in the second and following years, after clearing away the upper crust down to the crowns. This operation should be carried out late in the autumn, the soil removed from the ridge being cast into the trench on each side, there to remain, roughly dug, till early spring, when it should be thrown on the ridge to the depth of 3 to 4 inches, and be made smooth and level in the usual manner. The Asparagus being a plant which throws out new roots at a higher level each year, the stools approach nearer the ground level as time goes on, hence the ridge or bed gets higher than it was when planted, as soil must be got from the land adjoining where-with to cover the stools, and all the more, if "long handles" are wanted for the heads.

Among the more short-lived crops which may be employed as interlining or "catch" one, mention may be made of Lettuces, Endives, Leeks, Shallots, Celeriac, Garlic, late sowings of Onions, Horn and other small Carrots, Turnips, Cœur Troughuda, Parsley, Lamb's Lettuce, Rampion, and the earliest crop of Cabbages, generally a variety of small growth.

Kitchen gardens, pure and simple, when well and properly cropped, always afford satisfaction to the owner and his gardener, but they are scarcely satisfying to the æsthetic person. The orderly intermingling of crops in narrow breadths and plantations, whilst affording various useful purposes, do indeed add a certain degree of attractiveness to this useful adjunct to a country establishment. F. M.

WISLEY TRIALS.

WHENEVER in due course Onions form the subject of trials at Wisley, as several years ago they did at Chiswick, there will be for additional interest two or three so-called new varieties. It is the unfortunate characteristic of the Onion that very little that is distinct in its leafage is seen, and it is rather in the ripened bulb that any distinctions are to be found. But whilst no amount of testing or trials at Wisley will check the putting into commerce from time to time as new what are mere selections of well-known stocks, at least it is not the fault of the Royal Horticultural Society if full information as to the identity of the so-called varieties or the actual differences between them, or other merits if there be such, is not abundantly provided. Should an Onion trial be taken in hand next year, the beginning should be made by a sowing of every good hardy variety in August next, with in each case a blank drill adjoining, to be filled by transplanting from the sown drill next spring. The usual spring-sowing should be made in March, but again it would enhance the interest and value of the trial, if seed of the same stocks of some 20 selected varieties were sown in January under glass and plants put out into vacant drills at the end of April, as is now the recognised custom in Onion culture. We should thus obtain a test of cultural diversity as well as of varietal value or distinctness. There is no reason why a breadth of ground previously manured and trenched specially for Peas should not do admirably for Onions. It is not at all needful to secure a good trial that giant bulbs be grown. Those of fine hard maturity will satisfy all needs. Happily at Wisley there is ample room for good trials, and as shown by the one of hardy, or so-called hardy Kales now seen there, very useful service can be rendered. The brief spell of hard weather at Christmas sufficed to show that all the broad-leaved Kales soon succumbed, the curled Kales proving to be much the hardiest. A. D.



FIG. 42.—WATER SCENE IN SIR FRANCIS LEY'S GARDEN, LEALHOLME, YORKSHIRE.

(For text see page 84.)

dimension; is not wasteful of space to any appreciable degree, if due attention be given to the size to which the various kinds of vegetables attain.

With regard to crops of low growth for which the demand is constant and considerable, as for Potatoes, French Beans, Main Crop Carrots, Beetroots, Cabbages, Cauliflowers, Savoy, Onions, &c., these are more usefully planted in breadths stretching right across the various quarters, and not more than 20 feet in width. Taking care that the various crops are sown or planted on land which has received the proper kind of manure, and a simple digging or trenching as may be considered necessary. Between these long beds I have found advantages in sowing two or three rows of Peas; and the interval between them need not exceed 4 feet in varieties with haulm of that height, and for tall varieties up to 7 feet, not more than 6 feet. There should be a 3 feet wide space on the outside of such interlining crops as will allow

plants permits of an easy succession by sowing or planting.

Strawberry beds consisting of five or six or more rows of plants of one variety may be divided from each other with any of the plants mentioned which are a good height, and derive benefit from the arrangement, partial shade being natural to a plant that is at home in open woods. The dividing strips assure all needful safety from the chances of getting the runners mixed.

Like many others, I can perceive no advantage in growing Asparagus in large quarters by itself, as better heads can be more easily obtained from single rows of plants set out on slightly raised narrow ridges, say, 3 feet in width, placed also as dividing lines between vegetable crops of low growth. The plants should be placed at 2½ to 3 feet apart; and seeing that, then no plant can rob another of its food, and the adjacent crops are grown at a distance of a yard or further on either side, the

NOTICES OF BOOKS.

FRENCH GUINEA.—M. Pobéguin has lately published through M. Challamel, Rue Jacob 17, Paris (Williams and Norgate), an *Essai sur la Flore de la Guinée Française*. It comprises some introductory details relating to the climate, the geography of the colony and its vegetable productions. It is a valuable addition to our knowledge of the West Coast of Africa, roughly, between 10° and 12° of latitude, and 13° and 17° of longitude abutting on the south on our own territories. A railway already extends 150 kilometres from Conakry as far as Kindia, passing through the coast region to the hill country, where it reaches an altitude of 1,000 metres. Here a town is rapidly rising, and the climate is not unfavourable to Europeans. Here caravans arrive from the north and from Sierra Leone on the south. On the coast the climate is equable throughout the year, with a maximum temperature of 35° C. (95° F.), and a minimum of 24° C. (75° F.), with excessive humidity in the rainy season.

At Kindia the climate is considerably cooler, and on the high plateau of the interior still more so. The rainy or winter season lasts about the same length of time as the dry and colder period; the rainy season, beginning in May, is at its height in July and August, when the rain falls every day. In October the dry season commences.

Owing to the configuration of the land and the differences in climate, the flora of French Guinea is more varied than that in the other parts of West Africa. M. Pobéguin divides the flora into five divisions, characterised by the presence of Oil Palm, the Raphia Palm, the Lami (Pentadesma butyracea), the Mènè (Lophira alata), the Landolphia, the Calceolaria (Kaya senegalensis), in addition to which there is, of course, the vegetation which is common to all parts of tropical Africa. An account is given of each district, and an enumeration of the plants collected by the author. Unfortunately, a large proportion of these are indicated by numbers only, the species not being yet identified. A considerable number of Orchids is given, but with the exception of some species of Angraecum, Lissocilus and Eulophia, few present much attractiveness in their flowers. A map and numerous reproductions from photographs render this volume very interesting and important, although, as the author points out, it is to be regarded as an introduction rather than as a completed whole.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

As those plants like *Masdevallia ignea*, M. Lindenii, M. coccinea, and M. c. Harryana, and other strong growing kinds, and the small species and hybrids which were re-potted last autumn, are now re-commencing to root freely, and are developing young leaves, they will need a gradual increase of water at the root, and a rather moister atmosphere than hitherto. Plants that were not in a suitable condition for re-potting at the season mentioned may be treated now. Large plants that have become bare through loss of leaves in the centre may be divided, and be re-made up into good specimens. The lovely and white winter-flowering M. tovarensis may also be re-potted after the flowers have faded. If the spikes of the present year are not removed from the plant, they will continue fresh and green, and produce more flowers from the apex the following year. I do not advise retaining the old spikes longer than that, as they would tend to weaken the plant. Select shallow pans or pots of suitable dimensions to contain the plants comfortably, and fill them to three-fourths of their depth with drainage materials. Employ a compost of peat and sphagnum-moss in equal parts for the plant to root into. Water the plants sparingly till the young leaves are well advanced, for if kept too wet the old foliage is liable to damp off. A cool and shady position in the intermediate house is the best place for this species until the weather becomes decidedly warmer.

Vanda carulea.—Any plants which require more root-room should be taken in hand at once, as in a short time the young roots will

appear, and the least touch at their points would be likely to injure them. The plants of this lovely species, for a few years after importation, grow and bloom fairly well; then, in some cases, the plants gradually become weaker, and finally dwindle away altogether. Failure appears generally to be due to insufficient ventilation, too much heat and moisture in the atmosphere, or too much water at the root during the resting period. It comes from the Khasia hills in India, at an altitude of 5,000 feet or even higher, where there is no damp heat or stagnation in the air, growing on low trees fully exposed to all weathers, and where during the growing season the rainfall is excessive. The grower will thus have some idea of its cultural requirements under our artificial conditions. Wm. Griffith, the original discoverer of this species, describes the locality as "delightful, reminding one much of England."

Dendrobium Wardianum, *D. crassinode*, *D. Clio*, *D. Juvae*, and others that commence to make new growths before the blooms on the previous year's bulbs are fully open, will require special attention, and the grower should do all that is possible to prevent these growths from advancing too rapidly, as they will do if excessive heat and moisture are afforded. Afford water only at long intervals until the flowers have faded and the young growths commence to root freely.

Other *Dendrobiums*.—*D. primulinum*, *D. Boxallii*, *D. crepidatum*, *D. cretaceum*, *D. Berkeleyi*, *D. crystallinum*, *D. superbum*, *D. s. Burkei*, and others which are showing their flower-buds, will now require more heat and moisture to enable them to become properly developed. *D. chrysanthum* and *D. chrysotis* (*Hookerianum*) are growing freely. The first-named species should be suspended in a light position in the warmest house, and the *D. chrysotis* requires a similar position in the Cattleya house.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Orchard house.—The trees must now be brought indoors. Examine the drainage material, and see that it is made effective. Make sure that the soil has not been soured by the winter rains. Re-pot those plants which were not potted last autumn. We obtain the best results from old trees when we treat them as follows.—They are turned out of their pots in October, root-pruned, the "balls" reduced, and planted in a warm, sunny border, where they remain during winter. They are lifted in January or February and potted into the pots of the same size as those they were fruited in in the previous year. We use good, heavy loam, chopping it finely, and adding a 6-inch potful of coarse grade manure to each barrow-load of soil. Potting is done firmly, leaving about 2 inches clear space for watering and mulching. A little water is applied to the roots to settle the soil. We wash each tree with caustic alkali, to destroy maggots and other insects. Some trees have to be pruned, but only moderately. The trees are eventually placed in the orchard-house, which has previously been thoroughly cleaned, and in some cases re-painted. The trees should be placed in the positions in which they will remain during the season. Keep the atmosphere of the house cool for the present by opening the ventilators night and day, but taking care to exclude frost. Early fruit can be obtained by placing a number of the plants in a house containing early-fruited Peaches.

Vine "eyes" that were inserted in pots or turves last month and placed in a cold pit should now be removed to a warm pit. Plunge them in a bottom heat of 80° to 85°, and maintain an atmospheric temperature of 60° to 65°. Be very careful not to apply too much water, as the strong bottom heat would cause the eyes to decay.

Ripe Grapes that were cut and placed in bottles of water in the fruit room should be examined twice each week, removing any decaying berries, and affording more water if necessary, being careful to see that the stem reaches into the water. Maintain an atmospheric temperature of about 45° to 55°. Grapes keep best in the absence of light, therefore on sunny days lower the blinds. Lady Hutt is the best keeping late white Grape, while Directeur Tisserand and

Lady Downes are the best keeping late black Grapes.

Peaches and Nectarines.—Trees that have set their fruits may be gently forced. If the weather is fine admit a little air by top ventilation only. Let the atmospheric temperature at night be 55° to 60°, and during the day by sun heat 70°. Syringe the trees freely with tepid water to free them of their old flowers. Disbud forward growths gradually. If there is a good set of fruit, thin out the smallest, and as the fruits advance in size thin them out by degrees. Test the inside border, and afford a soaking with tepid water when this is required.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Seats.—A good supply of comfortable garden seats is an essential requirement of every public park and their judicious distribution adds greatly to the comfort and convenience of visitors. Seats are as often as not merely "dumped" down at regular intervals along each and every path in a park, with but little, if any, consideration as to the suitability or otherwise of the site. There is a fitness of things in connection with the placing of a garden seat just as there is with everything else. It may not detract from the actual utility of a seat whether it is placed in such a position as to command a pretty view or overlook the entrance to a public lavatory, but it certainly makes a great difference to the feelings of those resting upon it. Experience teaches that there are many positions in public grounds where it is very unadvisable to place seats. They should never be in such a position as to hide out a clear view of a flower-bed or design, neither should they be placed in narrow footpaths, rock gardens, or ferneries, nor in secluded spots which are not much visited by the public. Then, again, many sites are suitable at one season of the year which are unsuitable at another; in summer and early autumn visitors generally prefer shady places to rest in, but in winter and spring they like the sunny spots which are sheltered from the cold winds, so that it becomes necessary to remove seats from time to time to meet the requirements of the seasons. As many of the users of public seats are in the habit of placing their dirty boots upon them, to the annoyance and discomfort of other people, it is always well to have a dividing arm in the centre of each seat. This not only prevents dirty boots from being placed upon them, but it also prevents one person monopolising a whole seat. In connection with the seating question, another matter arises which requires the careful attention of park attendants. These officials are, unfortunately, too often made aware of the existence of a depraved class of men whose whole aim and object in life seems to be the annoyance of females. As a rule, these persons are very difficult to detect, and, for very obvious reasons, still more difficult to convict, but where a number of seats in a park are set aside for the exclusive use of ladies, and have a notice placed upon them to that effect, then the attendants can easily see that no one using them is in any way molested by this class of individuals.

THE KITCHEN GARDEN.

By WILLIAM HONNESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

THE severe frosts and the east winds that have been so general during the last week have considerably impeded the work in the kitchen garden. If there is still much ground to be dug or trenched, sufficient quantities of manure, wood-ashes, and extra soil, if necessary, should be wheeled on to the vacant ground for immediate use as soon as a thaw sets in.

Hot-beds.—Where these were prepared for the forcing of Potatoes, Carrots, Turnips, &c., as advised in a previous calendar, they may in some cases be found to have shrunk to a considerable extent, therefore additional linings should at once be applied of materials prepared for the purpose directly the shrinking was observed.

Cauliflowers.—Where sowings of these were made last month, the young seedlings should now be ready for pricking off, either in small pots or boxes; or if a frame on a very mild hot-bed can be devoted to them, so much the better

for the young plants. In either case, care must be taken that the plants are not "coddled," or allowed to get drawn up weakly. Make a further sowing at the present time to form a succession.

Seakale.—If this crop is being forced on the beds in the open, all the crowns that have been left for late supplies, and have not yet been covered, should now be given this protection from sunlight, for, in the event of warmer weather and the daily increasing duration of daylight, growth will soon commence. The natural purple colour of the growths would soon establish itself if light were not rigidly excluded, and such colour must by all means be prevented, or the Seakale would be useless as a vegetable.

Parsnips.—If the remainder of last season's crop are still in the open ground, the roots should now be lifted, and stored either in a shed or in a clamp, thus preventing them from starting into growth. Presuming the ground on which Parsnips are to be sown this season has received a good dressing of manure, which has been deeply buried, the seeds may be sown any time during the present month—indeed, as soon as the ground can be found sufficiently dry and in good order for the work. Preference should be given to a plot that has been previously occupied by Cauliflower or Cabbage, or some similar crop. Sow the seeds in shallow drills drawn at 18 inches apart.

The Root-store.—An examination of all roots should be carefully made during bail weather. Seed Potatoes should be well "picked over," and the tubers, if possible, spread out in a light, well-ventilated shed.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

The Rose-house.—If not already done, this house should now be cleaned with a view to starting the trees into growth. Any necessary pruning (or in the case of climbing varieties thinning out of the shoots) may be done, and the beds or borders be afforded a top-dressing with some new loam; afterwards mulching them with some well-rotted manure. An atmospheric temperature of 45° to 50° will be suitable at first, but the heat may be gradually increased as the trees start into growth. Ventilate the house carefully, as cold draughts are very injurious, and often favour the appearance of mildew on the leaves. Pot-Roses, in batches, for succession may be brought on in a fruit-house when the fruit trees are just starting into growth, at which time the same conditions will be suitable for the fruit trees and the Roses.

Hippeastrums (Amaryllis).—Seedling plants should be kept growing in a warm house, re-potting them into larger pots as this becomes necessary. Old plants that have been resting may now be cleaned up, re-potted if thought necessary, and placed in warmer conditions. It is usual to plunge the pots in a mild hot-bed, and in such a position the roots will only require very little water for some time to come, the slight sprayings with the syringe being sufficient until the plants have made fresh roots.

Gloriosas.—These having been dormant for some months may now be shaken out of the soil and re-potted in a compost consisting of equal parts of lumpy peat, loam and leaf-soil, with sand and charcoal to keep the whole porous. Plunge the pots in a hot-bed in a Cucumber or Melon house, applying no water until growth commences. When growth has commenced, train the shoots in a light position in the stove or other hot house, syringing them often to keep them clear of red spider and thrip, to which, if kept in too dry an atmosphere, they would soon fall a prey.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLL, Bickton, East Devon.

Morello Cherries.—If Morello Cherries have not yet been pruned, let the work be done at once. The pruning of the Cherry is almost identical to that of the Peach, the major part of the fruit being borne on wood made in the previous year, although a good percentage is also obtained from spur growths. It must not be overlooked that the nearer the spurs are to the wall the better the chance of the flowers escaping spring frosts; therefore a few of the oldest spurs should be cut clean away each

year. It is the best practice to take the branches from the wall annually, so that they can be thoroughly washed, but time will not allow for this in all gardens, and since spraying is more generally adopted, there appears less necessity for this method. As a rule, the Morello Cherry is trained far too thickly, and instead of young shoots being 3 inches apart, half that distance is much nearer the mark on many a Cherry wall. Lay in each shoot its full length unless it be on young trees, and more wood is required to furnish the wall, when it must be cut back to where it is wished to have new shoots. We have adopted the plan of tying a young shoot on the old wood when it is not likely to interfere with adjoining ones, and are well pleased with the result. Morellos are sometimes grown as standards in the open. We have two nice young trees here which fruit splendidly, but we find much difficulty in preserving the fruit from the birds, enclosing the heads in a framework of wire netting alone baffling them. When pruning has been done, afford the borders similar treatment to that recommended for Peaches in last week's Calendar.

Pear trees.—Good varieties do not extend far into double figures, and it must be bewildering to a beginner to know which to choose from the long lists given in many nurserymen's catalogues. Williams' Bon Chretien, Marie Louise, Beurré Hardy and Beurré Superfin, Winter Nelis, Fondante d'Automne, Louise Bonne de Jersey, Doyenné du Comice, and Glou Morceau doubtless comprise the best of the varieties. Excellent fruits are to be had from pyramid and bush trees, especially early and midsummer varieties, but late sorts should be given wall space. In such a position the fruits can be allowed to hang well into November, with little fear of their being blown down or much bruised by the autumn gales. Upright cordons should be planted against suitable walls more frequently than they are, and with periodical root pruning or lifting they will usually bear well. The best fruits are obtained from trees growing in a strong, deep, loamy soil that is well drained. Trees may still be planted. Push forward the pruning of established trees should such work still be in arrear.

Severe frost.—On the night of February 2 we registered 18° of frost, which is greater cold than has been registered at Bickton for 16 years past.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

The rock garden.—Frequent attention should be given to the rock garden, especially during the dull season. Remove all wind-blown leaves from the "pockets" and crevices, and pick out any weeds there may be among the plants, at the same time stirring the surface soil. Keep a look-out for slugs and snails, which are apt to prey on the young growths of many plants. Choice spring-flowering plants and bulbs which are coming into flower should be securely staked where necessary, and screened from rough winds by sticking a few sprays of some evergreen in the soil on the windward side. Fresh soil may, when required, be given to any of the later flowering subjects during suitable weather. Frequent top-dressings are not to be recommended, as this has a tendency to make the "pockets" too deep and to gradually hide the rocks, which should be kept exposed, or the rockery will lose its character. For this same reason the more vigorous of the spreading shrubs planted in the background should be restricted. Clear off the bulk of the mosses which have accumulated during the wet season, but encourage the various lichens to spread, for these give an established and natural tone to the boulders. It frequently happens that a few of the choicer Alpines have become weakened by the struggle to adapt themselves to the ever-changing conditions in winter, and scarcely possess sufficient vigour to live through the spring. If small pieces be taken from these invalids and potted in well-drained pots of soil containing more liberal proportions of sand and leafmould than usual, and placed in a cool pit, they will usually form healthy young plants for planting out at a later date. Gradually harden to the outside air those plants which have been wintered in frames, so that they will be in proper condition for planting out when circumstances permit.

Gladiolus.—Most of these should be planted this month, but a small proportion may be held back for a month or so, to yield a later supply of flowers. When Gladioli are used for bedding purposes, it is best to associate them with some other plants, such as Carnations or Cannas, so that there will be no blank when the Gladioli have flowered. For the production of exhibition spikes, and for supplying flowers for cutting, the corms should be planted in prepared beds of rich soil. Rub off the small corms, and, if it is desired to increase the stock, plant them in the reserve garden. In mild localities they may be wintered in the ground, and will bloom in three or four years' time. When liberally treated, the "Nanceianus" hybrids produce immense flowers of great beauty.

Lilium auratum bulbs may also be planted, using sound bulbs and allowing ample room between each for development. They must not be planted in exposed positions, and for this reason are frequently planted in Rhododendron and Azalea beds, and may also be effectively used in large beds of Yucca. Other species and varieties, such as L. Browni, L. longiflorum, L. Martagon, L. speciosum, and L. tigrinum, may with advantage be similarly used. Where L. giganteum succeeds, it repays for any trouble taken over it. The plant requires deep and rich soil, and generally some protection in the spring.

Sweet Peas.—A sowing of seeds should now be made in moderate heat. Various methods of doing this are practised, and of these the using of small pots, or of inverted strips of turf which have had most of the soil scooped out, may be considered the best. Seeds should be sown thinly, and when the young plants are an inch high, gradually harden them by increasing the amount of ventilation. Continue to draw the soil around the stems of autumn-sown plants. Afford stakes as soon as these become necessary, and for a further time retain the sheltering branches of Fir.

THE APIARY.

By CHLORIS.

Why should we keep bees?—In the first place it is a fascinating hobby and one which pays. There are abundant statistics to prove this statement. Many cottagers almost rely on the bees to pay the rent, which may vary in the country from £5 to £10. The Irishman, when told to remove his pig from the house, observed that it was the "jintleman" that paid the rent, and objected to it being turned out. Now bees can be made to pay the rent with far less trouble and cost than the pig. Every year we import £32,000 to £35,000 worth of honey. The whole of this might easily pass into the pockets of our people if they would bestir themselves. The imported material is generally of a very low quality and highly adulterated with glucose, &c., causing people to take a permanent dislike to honey.

Honey as a food.—It is asserted by many eminent medical men that appendicitis is, in a measure, due to the large number of pills taken by our people. If honey were taken instead of jam, and even butter, happy results would follow. Sugar in some form is needed by the body to give warmth and nourishment, and as honey is sugar in one of the purest forms nothing could be better.

Bees aid in the production of fruit.—Many cases are recorded of the failure of the fruit crop, and where an investigation has been instituted into the cause, it has been found that the district has been insufficiently peopled with bees. This was the case many years ago in America. In districts devoted to the production of seeds, such as Turnip and Cabbage, nothing will make for success so much as the establishment of an apiary in the midst of the crops. If anyone desires to prove the truth of this assertion, that bees aid in the production of fruit, they can easily do so. Protect a small tree by means of a fine meshed net through which no bee can get. It will prove far less fruitful than its neighbours which are in the open. Further, during a wet and stormy May bees are often unable to visit orchards, and a bad fruit season is the consequence. Sometimes the fruits set under such conditions, but it will be noticed that they rarely mature, but fall to the ground. Should such fruits be examined, it will be found that the pips have not become plump, but are simply husks; this is due to improper fertilisation.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, FEBRUARY 12—
Ann. meet. of Royal Hort. Soc. at 3 p.m.; Coms. meet. at 12 p.m.
British Gard. Assoc. Ex. Council meet. at 4 p.m.
Horticultural Club ann. meet. and dinner.

SATURDAY, FEBRUARY 16—German Gard. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—38°9'.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, February 6 (6 p.m.): Max. 40°; Min. 34°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 7 (10 a.m.): Bar., 29.8; Temp., 36°; Weather—Hard frost.

PROVINCES.—Wednesday, February 6 (6 p.m.): Max. 41° Ireland S.W.; Min. 33°; Scotland N.E.

SALES FOR THE ENSUING WEEK.

MONDAY AND FRIDAY—
1,000 Roses, Azaleas, Lilies, Hardy Border and Herbaceous Plants and Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

WEDNESDAY—
Hardy Plants and Bulbs, Carnation Dahlias, Lilliums, &c., Palms, Azaleas, Aspidistras, &c., at 12; 5,000 Roses and Fruit Trees at 1.30 and 4. 2,171 cases Japanese Lilliums, and other Bulbs and Plants at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

THURSDAY—
Sale of Surplus Nursery Stock at Burnt Ash Hill Nurseries, Lee, S.E., by order of Messrs. B. Maller & Sons, by Protheroe & Morris, at 12.

FRIDAY—
Choice Imported and Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

The Royal Horticultural Society.

In anticipation of the annual meeting, to be held on Tuesday, the 12th inst., the Council of the R.H.S. has issued its report for the year. The report is an eminently satisfactory one, as "the year 1906 has been one of steady progress in every direction." The principal event of the year was the Hybridisation Conference, so ably presided over by Mr. W. Bateson. Not since 1866 has such a successful gathering been held, and the council is fully justified in advertising to the matter with complacency. The next movement has been the actual commencement of the laboratory, a scientific research station at Wisley, of which Mr. Chittenden has, since the printing of this report, been appointed director. This will not appeal to the mere flower-show visitor, but if well conducted, its influence on horticultural progress must of necessity be very great. Setting aside for the moment pure scientific research, there are numerous questions that crop up in the course of the year which can, if sufficient support be forthcoming, be satisfactorily dealt with at such a station as Wisley. Numberless questions, as we know by experience, arise, from time to time, which cannot be answered offhand, but which could more or less readily be determined at an experimental station, such as we hope to see at Wisley.

In connection with this matter we trust that more attention and greater assistance will be given to the Lindley Library, especially as

the finances of the society are now in a satisfactory condition, whilst those at the disposal of the Trustees are exceedingly small. The library is large enough and important enough to demand the exclusive attention of the librarian, as provided for in the trust deed of the Lindley Library, a provision, from force of circumstances, never adequately carried out.

No fewer than six of the Victoria medalists have died during the year, and another must now be added to the list in the person of the late Sir Michael Foster. The vacancies have been filled by the appointment of Mr. Edwin Beckett, Dr. Augustine Henry, Mr. R. Irwin Lynch, Mr. Thomas Smith, of Newry, Mr. William Marshall, and Mr. Harry Veitch. That the two latter gentlemen should not have long since been entitled to call themselves V.M.H. is due to the fact that they were members of council. It is a wise regulation to prohibit members of council who have to bestow the honour on others from accepting it themselves, but it will also be generally felt to be wise that in exceptional cases like these the rule should not be enforced.

The total number of Fellows and Associates is now 9,467, no fewer than 1,207 having been elected in 1906, whilst 757 have to be deducted on account of resignations and deaths, leaving a net increase of 450 Fellows. We note that this is stated to be the highest number of subscribing Fellows belonging to any "Royal Society." How this may be we cannot say, but the Royal Society, as is well known, is limited in numbers, and not more than fifteen representatives of any and all branches of science can be elected in any one year.

The publication of Dr. Cooke's most useful hand-book of fungus pests is alluded to with natural satisfaction. Other details are given relating to the examinations, exhibitions, and meetings held by the society, the latter too numerous, by the way, during the winter months. Note is once more taken of the profusion of awards and medals granted by some of the committees. The excessive number of these, and the purely commercial value attached to them, at least outside, detract very seriously from the honour supposed to be conveyed on the recipient. If in the first instance provisional recommendations of a temporary character were adopted and registered, but not officially published, and confirmed or otherwise, as further experience might dictate, the numbers of these awards might be materially reduced, particularly if no award were made without a statement being made at the same time of the reasons for making it.

Wisley, apart from the experiment station, before referred to, is making satisfactory progress. A collection of Orchids is being formed, not by any means the first of the kind within our remembrance, but destined, we hope, to a longer existence and a more useful career than its predecessors. Over 9,000 visitors were enumerated at the garden in 1906, which, considering the difficulties and cost of access, is a large number, and must severely tax the patience of the courteous superintendent and his staff. We are but anticipating when, in closing this very satisfactory report, we, on the part of the

horticultural community, tender to all concerned, from the president, secretary, and council to the office staff, and that at Wisley, the most cordial recognition of the value of their services, and express the hope that they may be able to show as good a record in 1907 as they have done in 1906.

OUR SUPPLEMENTARY ILLUSTRATION presents a view of the avenue of "Talipot" Palms (*Corypha umbraculifera*) in the Royal Botanic Gardens, Peradeniya, Ceylon. These gardens have been described by tourists as "The garden of Eden," and are situated about 70 miles from Colombo, at an elevation of about 1,600 feet above the sea level. The area of the gardens is about 150 acres, and, as is to be expected from its equable climate, about 75° Fahr., the vegetation is purely tropical. In our issue for December 22, 1906, we published an account of the first Rubber exhibition held in Ceylon in these gardens, when many interesting details of the vegetation, &c., in the gardens were given. The following account of the avenue under notice is taken from Mr. H. F. MACMILLAN'S interesting *Guide Book* of these Royal Gardens, of which the author is curator:—"The noble Talipot Avenue was planted about 1885. This *Corypha umbraculifera* may be called the chieftain of the Palm tribe, attaining, as it does, to greater proportions of leaves and trunk than any other Palm known. The immense fan-shaped leaves are at their largest size when the plant is about twelve years old, before it forms a trunk; they measure several feet across and are largely made into fans, umbrellas, portable tents, &c. Known as "ola leaves" they have been used from time immemorial to the present day for writing native text upon by means of an iron stylus. The large hard seeds are made into buttons and ornaments. When from thirty to forty years old, the Palm produces from the summit an enormous canopy of creamy white inflorescence, followed a year or more later by ripe seed, and shortly after by the death of the Palm. Behind the Palms, on the right, are different kinds of *Guttapercha* trees (*Dichopsis*), and further back along the river bank are the principal rubber trees known, viz., *Hevea*, *Castilloa*, *Manihot*, or "Ceara rubber," *Funtumia* or *Kickxia* "Lagos rubber," *Mascarenhasia*, &c. On the left is the herbaceous ground, occupied by a large and interesting collection of herbs and undershrubs, all labelled and arranged according to their families; they include the powerfully narcotic *Ganja* plant, *Cannabis sativa*, and many others of medicinal and economic value."

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will be held on Tuesday, February 12, and the annual general meeting will be held in the afternoon of the same day at 3 o'clock.

THE AMERICAN CARNATION SOCIETY held its meeting on British territory, viz., in the city of Toronto, on January 23, 24. Every preparation was made for a successful meeting, and we trust that nothing occurred to spoil what is after all a family party. Whether we islanders should care in mid-winter to take a journey of a thousand miles, to an exhibition and conference in such a climate, as some of our American cousins are prepared to do, is another matter.

NATIONAL FRUIT GROWERS' FEDERATION.—A meeting of the council will be held on Monday, February 11, at 2.30 p.m., at the Royal Horticultural Hall, Vincent Square. The business on the agenda includes a proposition by Mr. WAGHORN, that a special committee should be organised in Kent, to work in conjunction with the local authorities to obtain earlier delivery in London markets, and other improvements in the railway service (postponed from last meeting).



AN AVENUE OF YOUNG "TALIPOT" PALMS (*CORYPHA UMBRACULIFERA*) IN THE
ROYAL BOTANICAL GARDENS, PERADENIYA, CEYLON.

Photo by H. F. Macmillan.

THE BOTANICAL MAGAZINE.—This valuable publication is now issued under the editorship of Lt.-Col. PRAIN, the Director of the Royal Gardens, Kew. The plants figured in the February number are the following:—

NERINE BOWDENI.—*W. E. Gumbleton in Gardeners' Chronicle*, February 13, 1904; *Botanical Magazine*, tab. 8,117; *Flora and Sylva*, 1905, p. 120, c. ic., col.—A very handsome and distinct species of Nerine from the Cape Colony. Hort., Gumbleton, and Kew.

OLEARIA SPECIOSA (*Hutchinson*), tab. 8,118.—A new species allied to *O. dentata*, from which it differs in its oblong, elliptic leaves, smaller flowers, and almost glabrous seed-vessels. The branches and under-surface of the leaves are thickly covered with light-brown, felted hairs. The white flower-heads are in loose branching corymbs. It is a native of Australia and has flowered in the Temperate House at Kew, where it was received from the Melbourne Botanic Garden.

MECONOPSIS PUNICEA (*Maximowicz*), tab. 8,119 [also in *Gardeners' Chronicle*, October 23, 1904, p. 289, fig. 130].—A biennial species remarkable for its richly-coloured crimson nodding flowers and sessile stigma. The plant was introduced to the nurseries of Messrs. JAMES VEITCH & SONS from Western China by Mr. E. H. WILSON. The description now given is from the pen of Col. PRAIN, the authority on this genus, who contributed a monograph of the species to this journal on June 17, 1905.

RIBES MOGOLLONICUM (*Greene*), *Shan in Botanical Magazine*, tab. 8,120.—A native of the south-west United States, with palmate leaves, and erect flower-clusters, followed by purplish berries. The synonymy is very involved. The shrub is a native of the Mogollon mountains in New Mexico. We fear lest there may arise confusion between this name and *Magellanicum*. It was introduced to Kew from seeds sent by Mr. HENKEL, of Darmstadt.

SACCOLABIUM RUBESCENS (*Rolfe*), tab. 8,121.—One of the numerous novelties discovered in Annam by Mr. W. MICHAELIS when collecting for Messrs. SANDER & SONS. It is allied to *S. ampullaceum* Lindley, but is more robust in habit and has much smaller flowers. Flowered at Kew and at Glasnevin. In the structure, but not in the colour of the flowers, it is like the species of *Angraecum*.

THE LATE SIR MICHAEL FOSTER.—A memorial service was held in St. James's Church, Piccadilly, on Saturday last, which the president (Lord RAYLEIGH), the secretary (Sir ARCHIBALD GEIKIE), and many Fellows of the Royal Society attended. It will be remembered that Sir MICHAEL was biological secretary to the Society for several years. The body of the church was filled, and among the members of the Scientific Committee of the Royal Horticultural Society, of which Sir MICHAEL was a vice-president, were present Mr. J. T. BENNETT POE, Dr. HORACE BROWN, Prof. FARMER, Dr. VOELCKER, Dr. HUGO MULLER, and Dr. MASTERS. Doubtless many others would have been present had it been possible to have announced the occurrence sufficiently early. A similar service was held in Trinity College Chapel, Cambridge, at which Lt.-Col. PRAIN attended. The funeral took place at Huntingdon.

PRESENTATION TO A GARDENER.—Mr. C. A. BAYFORD, for the past eight and a half years gardener to the Earl of LICHFIELD, Shugborough, Stafford, was presented with a clock by the Earl and Countess, on January 26, on his leaving Shugborough to take up new duties at Davenham, Malvern, the seat of C. W. DYSON PERRINS, Esq. The Shugborough Park Cricket Club has also presented Mr. BAYFORD with a diamond pin.

ROYAL METEOROLOGICAL SOCIETY.—At the annual general meeting of the Royal Meteorological Society held on January 16, Mr. RICHARD BENTLEY, the President, on behalf of the members of the council, presented an illuminated address to Mr. WILLIAM MARRIOTT in recognition of his services as lecturer for the society.

KEW BULLETIN.—It is gratifying to note the punctuality which now prevails in the publication of this interesting periodical. The first number for 1907 contains an account of the Cluster Cup (*Æcidium*) disease of Conifers, an article on the Chinese drug known as Tang-Shen, by Mr. E. H. WILSON, with an illustration. The drug is used in place of Ginseng, and consists of the dried roots of *Codonopsis Tang-Shen* of Oliver. The death of Lady BURDETT COUTTS affords an opportunity of noting her benefactions to Kew, including the gift of the late Mrs. GRIFFITHS' collection of British Algae and the Moss-herbarium of Prof. SCHIMPER. A list of plants suitable for cultivation in the warmer parts of the United Kingdom is given. The list is arranged alphabetically.

MITTEN'S MOSSES IN NEW YORK.—At the request of WILLIAM MITTEN, a chemist at Hurstpierpoint, Sussex, his great collection of Mosses, numbering at least 50,000 specimens from all over the world, was offered to the New York Botanical Garden in the Bronx Park for the moderate sum of £100 sterling and promptly accepted. One of the curators was sent to superintend the careful packing and shipment of the Mosses, and the collection is being arranged at the garden under the direction of Mrs. BRITTON, wife of Dr. N. L. BRITTON, the director, who is herself a specialist in bryology. The completeness of the collection, containing as it does specimens of the rarest kinds brought by SPRUCE from the Andes after his residence in South America, and other valuable species from Colombia, Ecuador, Brazil, Mexico, and the West Indies, as well as a valuable series of Arctic Mosses acquired during the early expeditions in search of the North-West Passage, now places the New York Garden in this department on a par with Kew and Berlin. MITTEN's first discoveries of Mosses in Britain began as long ago as 1842—he was 86 when he died last July—and in a few years' time travellers were sending him collections from various parts of the world, though his life was so secluded that he was personally little known and to comparatively few botanists. He received much encouragement from Sir WILLIAM HOOKER, who more than 50 years ago endeavoured in vain to induce him to take charge of his herbarium as curator in preference to that of a chemist's business at Hurstpierpoint, while for 40 years he was the friend of Dr. ALFRED RUSSEL WALLACE, Darwin's co-discoverer, who married one of his daughters. MITTEN's own private copy of his "magnum opus," the *Musci Austro-Americani* one of the volumes of the journal of the Linnæan Society, describing 1,750 species of Mosses, belonging to 127 genera, was sent by another daughter to Mrs. BRITTON in the execution of her father's instructions.

SCION AND STOCK.—The following note regarding the influence of scion on stock in grafting appeared in the *Botanical Gazette* for November, 1906:—By grafting *Nicotiana Tabacum* on *N. affinis* (which contains little or no nicotine), and *N. affinis* on *N. Tabacum*, GRAFE and LINDBAUER have succeeded in showing, in a more convincing way than before, the effect of the scion on the stock in respect to products of metabolism. Nicotin was found abundantly in *N. affinis*, whether it was functioning as stock or as scion. Indeed, it attained almost the maximum amount found in *N. Tabacum*, and scarcely fell below the limits of variation in that species. When *N. Tabacum* was the stock, and the scion, *N. affinis*, was cut away completely, the new shoots produced contained even less nicotine than the *N. affinis* leaves had; so that the authors believe the scion had even increased the capacity of the *N. Tabacum* stock to form this alkaloid. Further researches are in progress. *Agricultural News*, W.I.

CARNATION "SALMON LAWSON."—Messrs. HUGH LOW & Co., of Bush Hill, Enfield, send us a flower of a new Carnation, a sport from Lawson, but the colour is a delicate flesh-pink, and very pleasing. The flower has a slight fragrance.

JAMAICA.—The numbers of the *Agricultural News* for December 29 and January 12 which have reached us have a melancholy significance as containing a full account of the preparations for the Agricultural Conference, which was to be held at Kingston from January 11 to 17, and presided over by Sir DANIEL MORRIS. The conference, indeed, was in session when the terrific earthquake occurred. The principal West India islands were represented, and discussions on the cultivation of Sugar-cane, Cacao, Limes, Rubber, Cotton, &c., were to have been held, and papers read on the improvement of stock and the development of agricultural education. Excursions were planned to various parts of the island to visit the Banana and Tobacco plantations and other tropical cultures, including one of Pineapples. A portrait of Sir DANIEL MORRIS is given in the number for January 12, and it is believed that he, as well as the other members of the conference, escaped without serious injury. The three main lines on which the most beneficial results will accrue to the inhabitants of St. Lucia, but doubtless they apply also (*mutatis mutandis*) to the other islands, are as follows: The adoption of measures to prevent tropical diseases, the general spread of knowledge of agriculture so as to prevent wasteful methods of cultivation and induce prosperity, and the general brightening of intelligence by sound utilitarian education."

NITRATE DEPOSITS.—There is a prevalent idea that the Chilean nitrate deposits will, at the present rate of working, be exhausted in the near future, probably within about 20 years. This estimate is based upon surveys and calculations made some 10 or 15 years ago, before a complete examination of the pampas outside the province of Tarapacá had been undertaken. In recent years, as we are informed, vast deposits have been discovered and surveyed in the districts of Antofagasta, Taltal, and Tocopilla, and according to the latest official estimates the store of "caliche" now known to exist and to be workable will suffice to meet all requirements of consumption during the present century.

LADY DOROTHY NEVILLE'S REMINISCENCES.

—This is a delightfully unconventional record of past times with notices of scenes that Lady DOROTHY has witnessed and of people she has met. Lady DOROTHY has no little sense of humour, and was, and still is, ardently attached to horticulture. She was on friendly terms with many of its devotees, including GEORGE WILSON, ROBERT HOGG, HARRISON WEIR, and many others. Amongst other points of horticultural interest in her book, mention is made of a notorious swindler, whose wonderful productions were made the subject of a series of ironical comments in our columns by the late JAMES BATEMAN. It should be mentioned, however, that no exaggeration attached to the description of *Passiflora macrocarpa*, which was originally introduced by the late M. JEAN LINDEN. The very large fruits of this species resemble those of the *Granadilla*, *P. quadrangularis*, but are much larger, and the floral conformation is also quite different. As the flowers are handsome and the fruits excellent in a compôte, it is a pity this plant has almost dropped out of cultivation. Lady DOROTHY's garden at Dangstein was a home for many beautiful and interesting plants, the taste for which has been obscured by the preference shown to Orchids, plants suitable for house decoration, and such as furnish a continuous supply of cut flowers.

THE GARDENING YEAR-BOOK.—A book of reminders, telling the reader what he should do on each day of the year, circumstances permitting, is assuredly very useful, and when it is issued under the direction of Mr. GEORGE GORDON, the editor of the *Gardeners' Magazine*, the reader aforesaid may confidently rely upon the excellence of the advice given. A list of new plants of the past year is given, but is not so complete as it might be. There are excellent articles on the culture of fruits and vegetables, and a great variety of information likely to be serviceable to the gardener. It is published by Messrs. W. H. and L. COLLINGRIDGE, of 148, Aldersgate Street, E.C.

CROSS-BREEDING OF PINE-APPLES.—In the *Year-Book* of the U.S. Department of Agriculture for 1905, Mr. HERBERT J. WEBBER gives an account of the Pine-Apple breeding experiments carried out by that Department. All of the known varieties of Pine-Apple had some fault or faults which rendered them more or less unsatisfactory. It was desirable (1) that more varieties with smooth-edged leaves should be grown, since only one variety with this characteristic was known to the growers; (2) that more disease-resistant varieties should be obtained; (3) that the eating quality should be improved; (4) that better varieties for shipping should be produced. The pollen used was obtained by cutting off the flowers closely with short scissors. These clipped flowers were put in small labelled bottles until used. A fresh supply of pollen was collected each day. The process of crossing was very simple, as it is necessary to emasculate the flowers in the bud, on account of their being, as a rule, self-sterile. For the same reason, the flower heads were not enclosed in bags. In the process of crossing, the flowers, which scarcely open normally, were forced open slightly, in order to give easy access to the pistil. Pollination was then effected by rubbing open anthers of the desired variety over the pistil, from one to three anthers (the number depending on the abundance of the pollen present) being used on each stigma. Four years were required for the seedling plants to reach the fruiting stage, and it is thought that the best hybrid is the Miami, obtained from Enville crossed by Smooth Cayenne. *Agricultural News, W.I.*

THE ANTI-OPIMUM PLANT.—A paragraph has lately been the round of the Press relating to the discovery of a plant asserted to afford a remedy for the opium-habit. In the *Pharmaceutical Journal* for January 26, Mr. HOLMES, of the Pharmaceutical Society, announces the receipt of specimens from Perak, which show the plant to be a climber belonging to the family Combretaceæ known as *Combretum sundaicum*, of which a figure and description are given. Further evidence is required before the assertion of the medicinal virtue of the plant can be definitely accepted. All that can be said is that there is at present no satisfactory evidence that a *Combretum* possesses the powers attributed to it.

THE FIXATION OF NITROGEN.—It is greatly to be desired that the lay Press should avoid making sensational statements and refrain from the use of startling headlines relating to matters of which they evidently have little knowledge. The articles going the round of the Press on the utilisation of the nitrogen of the air make statements which are not new, while it is premature to treat them as wholly true. The production from the air of calcium cyanamide has now been known for some few years, and it has already been used experimentally and found to be about equivalent in value as a fertiliser to sulphate of ammonia. An attitude of expectant hope would seem to be the most appropriate feeling in which to indulge for the present.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, February 11, 1907, when a paper will be read by Mr. ALFRED A. HUDSON (Associate), entitled "The Ventilation of London."

FRUIT FARMING FOR PROFIT.—A fifth edition of Mr. BUNYARD's book with the above title needs no introduction, and, as we are told that the largest growers in Kent are constantly enlarging their acreage and the total quantity of fruit sent to market is much larger than it used to be, there seems to be no fear that fruit culture will be overdone, or that, in spite of cruel springs and occasional gluts in the market, it will, on the average of years, be anything but profitable. But growers must approach the business on modern methods, paying attention to the smallest details of cultivating fewer kinds that command a market value, adopting the best methods of grading, and by building up a reputation for honest packing and high quality. The Kentish practices, as here detailed, are worthy of the most attentive consideration. They are thus summed up by the author: "Grow few sorts, keep the trees well pruned and thin the boughs, manure freely and intelligently, and pack carefully." These four axioms, thoroughly carried out, will in a year or two more than double the proceeds from fruit-growing carried on in a slovenly manner. We heartily commend Mr. BUNYARD's lucid and well-reasoned treatise, based, as it is, on lengthened practice.

ALPINE PLANTS.—Mr. W. A. CLARK has published through Mr. UPCOTT GILL, Bazaar Buildings, Drury Lane, London, a second and revised edition of his handy little book on Alpine plants. The term is used in a wide sense, and the details of cultivation are just those which are required by the amateur. Useful charts are given by means of which the grower may see at a glance in what positions and in what soils to grow the plants, and how to effect the operation. An alphabetical list of suitable subjects is given, and selections for particular purposes afforded. The scheme of the book includes cultural details only.

CULTURE OF SWEET PEAS.

It has to be borne in mind in estimating the requirements of Sweet Peas what is expected of the plants. A long continued period of production is one essential, large blooms carried on very long stems is another, and slowly but surely the number of blooms expected on each spray is being raised to four. Culture has a determining effect on each of the above points.

There are, broadly speaking, two cultural requirements, the benefits of which it is hardly possible to overestimate. The one is an efficient root-run; the other, space for the plants to develop. Either of these may be provided, but it will serve no good purpose if the other is neglected. There are various ways of providing a suitable rooting medium. Some of my acquaintances remove the soil either wholly or in part, and introduce turfy loam and other expensive materials, but for ordinary purposes it is not as a rule necessary to go to so much expense. At the same time, it is to be remarked that a fertile and deeply worked soil is a necessity. But that can be secured by means of proper trenching and the addition of manure. The practice of bottoming the trench with a layer of manure does not commend itself to my mind as being the best method of presenting that material to the plants, though I do not doubt it may be a suitable way in certain soils and climates. A narrow trench I also deprecate, one 3 feet in width being well worth the extra labour involved. In trenching I prefer to incorporate rotted manure throughout the whole body of soil, mixing manure and soil

together in a rough but nevertheless an efficient manner. The result is that at no period is the plant underfed or overfed. The soil in these gardens being deficient in binding properties, I find it of not a little importance to make it firm as trenching is being proceeded with. This necessitates the ground being in a condition rather dry than approaching to a moist state, and therefore it cannot be cultivated unless in the former condition. Though it seems rather a paradoxical proceeding to loosen and break down soil at one moment and trample it firm the next, good results from such treatment are its justification. The good effects are a firm yet vigorous growth and the capability of the plants to pass through a rainless period without suffering from the experience. The other point, space, may perhaps be thought to be appreciated to so full an extent by all who grow Sweet Peas as not to call for special notice. Judging, however, by what I see and hear, those who appreciate the value of abundant space are in the minority. I have, indeed, had a clump of Sweet Peas examined by an unbelieving critic to satisfy himself that it was the growth of one seed only, and not of several, and over and over again persons have carefully inspected rows of Sweet Peas to make sure that the plants were set as wide apart as they were told. But the custom of allowing too little space begins earlier than at the planting stage. Again and again the practice of sowing several Peas in a small pot has been and is recommended, the resulting plants being planted out later. When raising Sweet Peas in pots for planting, I have never grown more than one plant in each pot. The benefit of this is most observable towards autumn when the single plant has greatly the advantage of those clumped, if they indeed survive till so late a period. Then in planting, many cultivators are so timid that they fear the plants will not fill up unless they are set only a few inches apart. Yet yearly the necessity of a wide space betwixt each plant is becoming more and more imperative, and the 9 inches which suited older sorts must be extended to meet the wants of such vigorous sorts as John Ingman, Queen Alexandra, Phyllis Unwin, and other recent novelties. I have decided to space all varieties this year at 15 inches, but the sorts will be strictly limited to the most approved and recent varieties as those above named, and Mrs. H. Sykes, Countess Spencer, Dora Breadmore, and a selection of novelties. These are so much superior to the older varieties that I am discarding most of the latter, including Lord Rosebery, Scarlet Gem, &c. *R. P. Brotherston.*

DECIDUOUS CALANTHES.

I ENCLOSE a photograph (see fig. 43) of *Calanthes* in flower at the present time in one of the plant houses at Oakwood, Wylam-on-Tyne. In my note on this genus, p. 411, June 27, 1903, I stated some of the difficulties experienced in the culture of these Orchids, and at the time those notes were written *Calanthes* were suffering from the effects of the black spot disease, which appears to be far more generally prevalent than I was aware of at that time. I had almost given up hope of having our plants in a healthy condition again, but we have at last overcome the difficulty, the result of which will be best shown by the photograph. As the plants will soon be passing out of flower, and will be placed under their usual resting conditions, some notes as to the methods followed may be of interest. I consider one of the chief factors in success is the proper hardening or ripening of the last season's pseudo-bulb, for if this is properly matured we shall undoubtedly obtain robust young growths at the proper season. As soon as the old flowering scapes have been removed, and the plants have cast their foliage, they should be turned out of their pots, the old potting compost be shaken away, and the roots severed to within about an inch of the base of the

pseudo-bulb. A shallow box, such as is used for seedlings, should be filled with chopped sphagnum-moss mixed liberally with coarse silver sand, and the bulbs duly labelled, placed in an upright position in the box, and secured at their base by a portion of the above-mentioned compost. The plants must not be placed too closely together, for the light must be allowed to reach each portion of the pseudo-bulbs, for which reason the boxes should be placed in a position where they may obtain the benefit of all the available light. If the sand and moss are reasonably damp when used, no more moisture will be needed, until the new growths make their appearance. The temperature of the house in which the plants are rested should not fall below 35° Fahr. As the season advances, and the atmospheric moisture is increased, the new growths will appear. The compost in the bottom of the boxes may then be occasionally moistened to encourage root development. The new roots make their appearance in some kinds almost as soon as the top-growths, but as they have the moist moss and sand as a rooting medium, it is advisable to allow some growth to develop before re-potting the plants. In potting, the pseudo-bulbs should be lifted with the compost adhering to their roots, for this will help

this stage that we experienced the greatest difficulty with spotting, and we found that by reducing the moisture on cool evenings, and by a judicious use of the top ventilators the last thing at night, this disease might be overcome. By the end of September, when the flowering scapes begin to develop, the blinds should only be drawn when there is a danger of scalding. This will help to harden the pseudo-bulbs as they mature, and will also help the development of the flowering scapes and will render them less liable to spotting. As the season advances, less atmospheric moisture will be required, but root moisture must be continued until the flowering scapes are expanded. A temperature of from 65° to 70° should be maintained. H. J. Chapman.

NAMING PLANTS.

In our number for January 12, p. 17, we gave extracts from the International Rules of Botanical Nomenclature as adopted at the Vienna Conference of Botanists in 1905. Those extracts related to points of special importance to horticulturists, as discussion on the subject generally is obviously more suitable for Botanical journals proper than for our columns. Dr.

"Furthermore, you wrote, 'Dr. Otto Kuntze did the same thing (set up rules of his own) and created synonymy by the thousand.'

"That is very wrong! I amended the Paris Lois only, as they were defective, and always with the aim to receive as few as possible changes of name. You are not able to show me *Deteriorations and Revolutions to the Paris Lois* in my *Codex brevis maturus*, by which more changes were caused, as necessary, by the Paris Lois.

"Therein (*Codex brevis*) are only *meliorationes necessariae et utiles* to the Paris Code.

"Synonyms by the thousand are only (are only) caused by Daydon Jackson's inept starting-point, now corrected, and the *Vienna Index inhonestans*, a very unfair thing, by which my correct names of plants cannot become synonyms.

"Well, you are a gentleman, and will not calumniate me, so you will correct yourself. And if you read my newest paper, I hope, also, you will write next time the contrary about *Briquet's Rules of Nomenclature* 'to be morally binding to all botanists'; for they are not internationally accepted, even not by the pseudo-international Vienna Congress; they are '*Regule irregulares immatura Nomenclatura botanica Vindobonensis in Actis falsis*.' Otto Kuntze."

With this letter came a pamphlet bearing the title, "Motivierte Ablehnung der angeblich vom Wiener Kongress, 1905, angenommenen inkompetenten und fehlerreichen botanischen Nomenklatur-Regeln, sowie Vorschläge zur international endgültigen Reform auf dem Brüsseler Kongress, 1910, von Dr. Otto Kuntze, San Remo (Villa Girola), Italien, Selbstverlag des Verfassers."

We need only say that the pamphlet is a very interesting one to those concerned, and bears further testimony to the excellent motives, zeal, and unflagging industry of the author. Doubtless its proposals will be carefully considered and dealt with at the next Congress in Brussels.

NOVEMBER AND DECEMBER IN MY FLORIDA GARDEN.

(Concluded from page 69.)

FOLIAGE plants, like *Acalyphas*, *Codiaeums* (Crotons), and *Strobilanthes Dyerianus*, grow successfully around the house in rich soil. They make a glorious picture, and the Crotons, in particular, attain to a very large size, while *Acalypha marginata* and *A. musaica* often grow 6 to 8 feet high.

HIPPEASTRUMS AND CRINUMS.

Three genera are my particular favourites—*Hippeastrum*, *Crinum*, and *Caladium*; in fact, they keep up my enthusiasm constantly and absorb most of my time, my attention, and my interest from early in March to Christmas. The *Amaryllises* of the genus *Hippeastrum* are the first. The majority flower from March to May, and there are only a few kinds in flower at this season of the year. The fine old *Hippeastrum reticulatum*, and its hybrids, Mrs. Garfield, Mrs. Lee, Autumn Beauty, and others, all with dark green foliage, striped white, only bloom in November, but they need a good deal of attention and much coaxing to grow and flower well in Florida. At Christmas time different varieties of *H. aulicum* make a fine show in the garden. I find two particular strains of these plants only a success—the so-called *Amaryllis robusta* (A. Rayneri) and A. Tettani. Both differ but slightly in their habit of growth and in the form of their flowers. The growth is vigorous, and they multiply rapidly in rich, shady places. The second class of my favourites are the *Crinums*, of which I have about 50 species and hybrids. Their nomenclature, however, is in deplorable confusion. When the *Hippeastrums* have finished their flowering, the *Crinums* follow in rapid succession. Among autumn bloomers *C. amabile* is foremost. It is the giant of its class, growing from 4 to 6 feet in height, and the flower spikes are over an inch in diameter. The bunch of



[Photo by H. J. Chapman.]

FIG. 43.—DECIDUOUS CALANTHES FLOWERING IN MR. NORMAN C. COOKSON'S COLLECTION.

to preserve them from injury. A compost of the usual proportions of fibrous loam, peat and moss will be suitable, and it is well to mix a liberal sprinkling of finely-broken potsherds among the mixture to assist in keeping the rooting medium porous. *Calanthes* are generally considered shade-loving plants, and there are no Orchids whose leaves scorch more readily when in contact with the direct rays of the sun, but the material for shading should not be too dense. I think that with the use of a lighter shading material than is generally used the tissues of the leaves become harder, and are then not so liable to spotting. The leaves also are retained for a longer time on the plants when light shading is provided, many of them lasting until the flowers have expanded. The pseudo-bulbs also mature better with more light, and produce finer spikes and better quality flowers. During the season of active growth, the plants require a more or less humid atmosphere, and plenty of root moisture, especially when the receptacles have become filled with roots. Some reduction of the atmospheric moisture is necessary when the growth of the pseudo-bulb is finished. It was at

Otto Kuntze, therefore, must excuse us if we print the letter with which he has favoured us without further comment than that an opportunity will be afforded him at the next Congress to confirm or revise, as may be deemed proper, the "articles, rules, and recommendations" adopted in Vienna.

"In *Gardeners' Chronicle*, January 12, 1907, I read a paper of yours, *Naming Plants*. Therein are some mistakes, misrepresenting myself, which I beg to correct.

"Well, you wrote about the Lois de 1867: 'These have been followed with comparatively few exceptions, up to the present time.'

"That is wrong. Most botanists did not care at all about them, and I was the first who applied them consequently. As no date of beginning for genera was fixed, I followed the proposition of M. Daydon Jackson; starting point, of 1735. You see, I liked to agree with English. Thereby much more changes of names were caused than with 1737, and 1737 being the only scientific and most profitable starting point for genera, I accepted it in our *Lexicon generum phanerogamarum*. Where against 1753-54 for genera is a horrible fiction and mistake that I cannot accept as a scientific and honest man.

deliciously fragrant blossoms is immense—a "whole armful." No true Lily can rival in stature and beauty, in fragrance and massiveness, this magnificent plant. A large clump, consisting of a number of bulbs, as a large bed is a sight of real tropical luxuriance and beauty. *C. angustum* is smaller in all its parts, though similar. The flowers are smaller and much lighter coloured, but they are quite as deliciously scented as those of *C. amabile*, of which I had gigantic spikes in a large Japanese vase on Christmas and New Year's Day, filling the entire house with a strong and grateful perfume, not found in such profusion and aromatic sweetness in any other flower with which I am acquainted. *C. asiaticum* attains almost equal proportions. Its flowers are white, with a strong vanilla-like odour. It is scarcely ever out of bloom, and is much harder than the two former species. *C. giganteum* is naturally an autumn bloomer, pushing up numerous flower spikes in November and December. The pure white, bell-shaped blossoms emit a pleasing and strong perfume. This species is the most ornamental of all my *Crinums* in foliage, which is dark green, with a decidedly metallic bluish hue. Among Spider Lilies the African *Hymenocallis senegambica* is an autumn bloomer. Its large, white, strongly fragrant blossoms are more lasting than any other of its class. It is a strong grower and a very valuable plant for sub-tropical gardens.

CALADIUMS.

But the crowning glory throughout summer and fall—until Christmas—are the fancy-leaved Caladiums. They are like a dream in this dreamland. Their wonderful hues and colour combinations are a revelation, their luxuriant growth appears like a marvel, and to admire them in all their beauty they must be grown in large beds by themselves. They only luxuriate in the moist, rich soil near the lake, in the half-shade of a lath-house. Here they grow to a perfection which excites the admiration of everyone who sees them. In this country these grand foliage plants are very poorly represented in gardens, though the price of the finest sorts is exceedingly low. I had never seen a good collection while in the north, and those plants I saw did not arrest my attention. The first really fine plants I beheld here in Florida were on verandahs, and they at once aroused my enthusiasm. A few tubers of the most common kinds, set out in rich, moist soil, grew 3 and 4 feet high, and as much in diameter, and acted as a powerful incitement to enlarge my collection. At present there are about 60 different kinds in one large bed. They are closely planted—about a foot apart each way—and they cover the ground entirely. No weeds will grow underneath them. Before planting the ground was heavily fertilised with Painter's Simon Pine Brand, a fertiliser rich in ammonia, phosphoric acid, and potash. After leaving my couch in the morning, usually before or at sunrise, I wend my way to the Caladiums. The foliage is now covered with innumerable dewdrops, which look like pearls in the sun's rays. The many colour combinations, the different hues, and the bright reflections are wonderful in the extreme. The colours appear to be endless in their variety, and even among the foliage of the same plant the young leaves often are entirely different from the older ones. Most of them exhibit bright metallic hues, such as steel blue, golden and silvery tints, bronze and copper in the bright sunshine. Some look satiny, others velvety, and others, again, like mother-of-pearl. The leaves of certain kinds are quite translucent. And this beauty, unique in the extreme and glorious beyond description, keeps me spellbound for many a morning, for days, and weeks, and months. Nothing in Nature has aroused my admiration and my enthusiasm more than these glorious foliage plants. They are, indeed, like a dream of the greatest beauty. There is absolutely nothing—as seen here in our sub-tropical gardens—that can vi-

in gorgeous and endless beauty with the fancy-leaved Caladiums. All of them are beautiful, the species, varieties, and the oldest hybrids, as well as the newer introductions which Messrs. A. Bleu, Fred. Bause, Jacob Weip, A. Lietze, and others have achieved such success with. These plant-breeders have given us new combinations of colour in endless variety, and very frequently new forms and larger sizes of foliage. While I am admiring the beauty of my Caladiums in the early morning, the soft and salubrious air is full of fragrance, and the mocking bird's song from the top of an Orange tree near by, or the loud strains of the Cardinal Redbird from a dense Cedar or *Cupressus torulosa* falls on my ear, and the whistling notes of numbers of quail's sound from the tall herbage of the near woodlands or the Orange grove. It must seem strange that the Caladiums can stand more frost than the *Alocasias*, *Colocasias*, *Xanthosomas*, *Crinum amabile*, *C. angustum*, and the *Hedychiums*, *Cannas*, and *Bananas* growing in their vicinity. While the foliage of most of the plants named is badly scorched or even destroyed by the first slight frost, most of the Caladiums have not suffered in the least. A few days ago I dug up a few of the largest specimen plants, Caladium *Reine Victoria*, *C. Clio*, *C. Chantinii*, *C. Wightii*, etc. They had formed tubers as large as a soup plate and almost of the same form.

ROSES.

This article would be incomplete should I neglect to comment on the "Queen of flowers." Says Dudley W. Adams: "And Roses! Roses! Roses! I need not mention the Roses, for everybody in Florida has Roses and knows that they, too, are in 'all their glory' in November. Agrippina, Safrano, Isabella Sprunt, Catharine Mermet are of that vigorous habit that needs little coddling, but with plenty of good, hearty feed, and plenty of water, they will make wonderful bushes and bear loads of Roses. Some of mine are 8 feet high, equally loaded, and Roses, Roses everywhere!"

WILD PLANTS.

The woods are also full of flowers near my place. The Golden Rod, many Asters, different species of *Coreopsis*, *Helenium*, *Eupatorium*—mostly yellow and white—lend a wonderful charm to all the woodland scenery. In the garden, underneath bushes and trees, the ground is covered with the very conspicuous white blossoms of the Star Flower (*Houstonia rotundifolia*), which always clings closely to the ground, the blooms appearing as if they were set on a velvety mosaic of foliage. Another plant in full bloom now is the Blue-eyed Grass (*Sisyrinchium Bermudiana*).

THE BIRDS.

My garden is the favourite winter resort for many of the birds of my childhood days, albeit the most familiar of them all, the robin (*Merula migratoria*) and the dainty bluebird (*Sialia sialis*) scarcely ever enter the grounds. The robin is much persecuted by pot hunters, and is therefore very wild and wary, while the bluebird is a sojourner of the flat wood, far from human habitations. I hear their plaintive call-notes frequently, while they fly over the garden in scattered flocks. They breed here sparingly, but they never seek the society of man, as in the north, where they are the first birds to greet the settler when he moves into his simple log cabin. The Phoebe (*Sagorni Phoebe*) is, perhaps, the most common of the familiar northern birds in my garden, arriving late in October, just before the cold weather sets in, announcing its arrival by its characteristic notes sounding like "pe-wee." Catbirds (*Galeoscoptes carolinensis*), brown thrashers (*Taxastoma rufus*), song sparrows (*Melospiza fasciata*), chipping sparrows (*Spizella socialis*), house wrens (*Troglodytes aëdon*), all familiar northern garden birds, and many species of warblers make the dense Florida Cedars (*Juniperus barbadensis*), *Cunninghamias* (*Cunninghamia sinensis*), *Cupressus torulosa*, *C.*

sempervirens, *C. Knightii*, *Magnolia grandiflora*, Wax Myrtles, wild Olives, Laurel Cherries, Orange trees, and other dense evergreens their favourite roosting places during the night; but they find particularly protection during cold weather in and among the soft, dense masses and festoons of Spanish Moss (*Tillandsia usneoides*), which, in exuberant profusion, covers most of our native forest trees. I have placed it on all the Oaks in my ground, but do not tolerate it on the choicer trees. Often the garden swarms in the morning with northern migrants. Though the weather is warm and beautiful, the air soft and invigorating, and the day almost an ideal one, I know that this sudden arrival of birds is a true sign of cold and stormy weather. Usually ten or twelve hours after these swarms of birds have appeared the wind changes to west, then to north-west, and the cold becomes intense, the mercury often falling from 80° F. to 40° F. in the course of ten hours. The freezing point is frequently reached, but really cold weather rarely sets in before January. Such a disastrous "freeze" as that of February 8, 1905, when most of the Orange trees were cut down to the ground—18° and 16° F. were recorded in the Orange belt—is happily something abnormal, and may not happen again in a lifetime. H. Nehrling, Florida.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

THE ROYAL GARDENERS' ORPHAN FUND.

When filling up my voting paper this week for the election, it occurred to me that it was about this time 20 years ago that the suggestion to establish such a fund was first made. I looked up the volume of the *Gardeners' Chronicle* for the first half of the year 1887, and found the first suggestions were printed on February 12. A note from your office shows me that my note, under the present signature, was sent to you on the 5th of that month. The only object I have in penning this note is to say how thankful we horticulturists should be that so much real good has been done in the meantime to those who were in no way responsible for being left in this world without a bread-winner. Is it not possible for hundreds of gardeners to give their mite to the Fund who have not hitherto done this? I certainly think it is. There are over 100 children now receiving help. Surely there is enough public spirit and self-denial amongst gardeners to spare a trifle over one penny per week, and so double the number of recipients on the fund long before another 20 years has elapsed. I certainly think it is more from want of thought than want of heart that this has not already been done. H. J. C., February 5, 1907.

MICE ATTACKING VINES.—H. C.'s inquiry under the above heading brings to my memory the mischief caused by field voles in a vinery at Pencarrow, while I was foreman there, now many years ago. The vines were young ones planted in an outside border that was protected during winter by a covering of leaves, a few inches of the vines' stems being also covered with the leaves. A colony of voles made their home in the bed of leaves, and for some reason, perhaps mischief, for sharpening their teeth, or for use as food, cut the stems of the vines entirely through. I well recollect the perplexity caused by the vines not breaking into growth, and, though vexatious, it was a relief of much anxiety to me when the cause of the calamity was discovered, for it had been thought that a too strong winter wash had been used on the vines. T. Coomber, *The Hendre Gardens*.

About two years ago I had a similar experience to that recorded by H. C., p. 79. One young vine was eaten off, and shortly after I heard something gnawing near one of the old vines at the point where it came through the wall, and when I examined it I found it was nearly half eaten through by a mouse of the same description as that mentioned by H. C., and which was caught a day or two after. I quite expected to see the vine collapse later, but it appeared to make no difference in its growth, although the stem was eaten half-way through, but not entirely around. In my opinion the mouse had taken a liking to the freely-running sap. J. Barnard, *Mostyn Hall Gardens*, *Mostyn, N. Wales*.

VEGETABLE PRIZES AT SHREWSBURY.—No doubt vegetable exhibitors will welcome the proposed change in the value of the society's prizes for 12 varieties, and also the special prize offered for the best exhibit in the trade classes. This, however, can hardly be termed a champion class, as some have thought should be provided at this show. Suppose the finest vegetables are present in the best exhibit in the society's class for 12 dishes, this exhibit would be debarred from competing for this said champion prize, owing to there being 12 instead of 9 varieties. I think a much better arrangement, if a so-called champion class were desired, would be to offer the handsome sum now mentioned, viz., £20, as first prize for the 12 dishes in the society's class where no stipulations are imposed in respect to obtaining seeds from any particular seedsman. We should then have found all those who claim, or wish, to be champions competing together. Some of our best growers obtain their seeds from one firm only; therefore, they have no opportunity of competing for these handsome prizes. No matter how the prizes are arranged, they probably will not please all; but what I have suggested would open the channel for a real champion competition. *E. M.*

SELECT WINTER-FLOWERING CARNATIONS.—I have tried over 50 varieties here this season, and the following are the best of their respective colours:—Robert Craig, Flamingo, and Challenger (scarlets), Harlowarden, Daheim, and President (crimson), Enchantress, Mrs. Burnett, Fair Maid, Mad. Thérèse de Franco, Fiancée, Mrs. Lawson, Nelson Fisher, Mrs. Theo. Roosevelt, E. Crocker, and Floriana (shades of pink), Lady Bountiful, The Belle of St. Peary (white), Ceres and Aurora are two very good yellow grounds or fancies; Mrs. N. A. Patten, Lord Charles Beresford, Mrs. G. M. Bradt, and Prosperity, are worth growing. The following varieties have not answered expectations:—White Variegated Lawson, Hon. G. Fellows, Xmas Eve, Cardinal, Lottie Pike, Pride of Exmouth, and Mermaid. The best of the new ones at present are Britannia, Victory, and St. Louis (scarlet), Marmion (fancy), White Perfection, and Mrs. Norman (white). There are many more, which I have not yet seen. *A. E. Usher, gardener to Sir R. Baker, Bart., Ransdon, Dorset.*

PREVENTION OF CORRUPTION ACT.—"Herts (Employer)" raises an important question: What is going to be done with the 5 per cent. formerly given to gardeners? Surely we are not likely to hear of any unpleasantness as to how the spoils are to be divided. If employers would raise their gardeners' wages equivalent to the amount and deduct 5 per cent. from the account, or instruct all tradesmen to show with the receipts the amount of discount given to the gardener, that would surely end the matter. I think it is to be regretted that the noble lord quoted on p. 42 had not taken some such steps, thus setting an example to others. [The noble lord you speak of is famed for his justice and generosity.—*Ed.*] I strongly resent the suggestion that gardeners order more stores for the sake of discount than are necessary [so do we]. I find a difficulty in adding a few novelties without complaints of high bills. Surely now is the time for all gardeners who have not done so to join the British Gardeners' Association, for with the best feelings, and in the interests of both employer and employed, something can and will be done by co-operation amongst gardeners to improve the condition of the gardener. *Head Gardener.*

DISCOUNTS.—It would be interesting to know whether those nurserymen abroad (see p. 79) who are offering illegal commissions to the gardeners of England are aware that they are inciting the gardeners to commit a criminal offence. More is likely to be heard of the matter before long, but meanwhile it seems fair to point out that this behaviour of the foreign nurserymen in question furnishes one more cogent reason why English customers should be careful, in their own interests, to give preference to home-grown products. *H. Morgan Veitch.*

FROST IN CORNWALL.—The weather is very cold. On the morning of the 3rd inst. we registered 15° of frost, and on the previous days 14° and 13° respectively. Before that time and for four days the thermometer had not risen above 39° Fahr. On January 23 our minimum was 17° and maximum 27°. I have not known such cold days before in Cornwall. But the weather appears general. *A. C. Bartlett, Pencarrow, Cornwall.*

A NATIONAL VEGETABLE SOCIETY.—Mr. A. Dean is by no means alone in advocating the formation of a National Vegetable Society. It may interest your readers to know that the following well-known horticulturists have expressed themselves in sympathy with the idea in response to an inquiry from myself. The names are placed in alphabetical order: Messrs. Edwin Beckett, Elstree; C. H. Curtis, Brentford; Charles Daniels, Norwich; H. Dunkin, Hort. Instructor in Warwickshire; G. H. Hollingworth, Hort. Instructor in Gloucestershire; Philip Mann, Hort. Instructor in Buckinghamshire; Thomas Redington, Hort. Instructor in Yorkshire; John Smith, Midland Agricultural Institute; Robt. Sydenham, Birmingham; Harry J. Veitch, Chelsea; Horace J. Wright, Wandsworth; J. Wright, Pershore. The opinions of others would be of interest. *Walter P. Wright, South Eastern Agricultural College, Wye, Kent.*

BLUE HYDRANGEAS.—Mr. Brown's statements on this subject in your last issue are interesting. I have always understood that the colour of Hydrangea blossom is never blue except when the soil contains a large proportion of iron, but the example of blue and pink blossoms on the same plant given by Mr. Brown seems to point to the blueness being a sport, from which reversion is common. In the grounds of a little iron church close to my farm there are some splendid blue Hydrangeas, which came, I believe, from the nurseries of Mr. Knight, at Hailsham. There is a great deal of iron oxide in the soil here, and more in the subsoil. *William Bear, Magham Down, Hailsham, Sussex.*

—I have always found the deepest blue flowers on plants growing in comparatively poor soil, and in more or less shade afforded by tall-growing trees. We had a very fine specimen growing among various flowering shrubs about half a mile away from the pleasure grounds, which always produced intensely blue flowers, and, wishing it to be where it could be more frequently seen, I moved it into the flower garden, with the result that only a very slight shade of blue has been noted in the bloom since. Growing on an island, and heavily shaded by an adjoining Oak tree, every flower-head comes of a lovely porcelain blue; this plant gets no manure of any kind, except it be the fallen leaves of the Oak. Some few years ago this question was discussed in these pages, and I sent the Editor half-a-dozen heads from the first-named plant, and he remarked that they were the deepest blue he had seen. By the foregoing remarks it may be gathered that shade has something to do with the colouring of these flowers, and I am of that opinion, while others consider that sea air plays an important part in adding the blue tint. Be that as it may, it is a well-known fact that in Devon, also Cornwall and the Isle of Wight, this blue colour in Hydrangeas is very common. Locally, many a cottager gives them the name of "changeable," and they certainly do change colour with age. It may be noted that the water supply here is largely impregnated with iron. *James Mayne, Bickton.*

—The colour can be obtained by the use of powdered slate [as at Angers, France.—*Ed.*]. I saw some of a very deep blue in Hampshire a year ago produced by this means. Here we have large beds of Hydrangeas, in which some of the flowers are always blue and others pink, and the cause is put down to the presence of mineral matter in the soil. We have tin mines near, and there is an old lode running under these gardens, and the water that percolates through the rocky sub-soil is strongly impregnated. The underlying rock, too, is of a slaty nature, being known as clay-slate or shillet, and it would be interesting to know which is really responsible for this change of colour. The same thing is to be observed in other neighbouring gardens, but I have never yet noticed pink and blue flowers on the same plant. *F. Mark, Porthywidden, Devoran, Cornwall.*

RIBES AUREUM AS A STOCK FOR GOOSEBERRIES AND RED CURRANTS.—Fifteen years ago I procured through a German gardener 50 Gooseberry trees direct from Germany worked on Ribes aureum. The stems varied from 4 to 6 feet in length. Half of the number were potted and put in a new Peach house. These grew and made wood 18 inches long in the first year, being syringed and treated like

the young Peach trees. In the following February they were started with the Peach trees, and they produced enormous crops of fine fruit, which ripened about the end of May and beginning of June, and were greatly appreciated for dessert. The trees remained in the same pots for five years until the Peach trees had covered the trellis overhead. I then planted the Gooseberries out in a covered-in fruit garden, and planted them against the iron standards which support the wire netting, where, with the others, they have cropped splendidly, better than the trees on their own roots growing beside them. I have watched them very closely for mildew, but have never seen any on them. The two faults I must find with them are that the stock throws such a quantity of suckers, and that the stems snap asunder so easily if the ties get broken. I have raised a new stock simply by saving some of the best suckers, being careful to remove every bud I can see at the roots, and simply budding in the summer as is customary with Roses or fruit trees. *A. W., Caterham.*

GOOSEBERRY-STOCKS.—It is a fact that Ribes aureum is used as a stock for standard Gooseberries, and equally true that one of the firms named by W. (see p. 60) send out plants budded or grafted on it. There are in this garden two or three such plants, which annually throw up suckers from the base of the stocks. And of those which appeared several years ago, some were taken off and grown on, and have since flowered in the shrubbery borders, leaving no doubt as to their identity. Few practical growers will support the practice of growing Gooseberries on standards, especially if budded on Ribes aureum, for, although this species makes a tall, clean stem, its girth increases so slowly as to always need a stake, and this, to support a heavily-laden "head," must be a thick one, imparting a clumsy appearance to the whole. Dessert fruits from standards are not superior to those grown on bushes. The best fruits are produced from the young growth of trees trained on trellises or wires. For the bush or trellis plant a "stock" is quite unnecessary. There is, therefore, no good reason for introducing Ribes aureum to our Gooseberry plots. *J. Comber, The Gardens, Nymans, Crawley.*

RATS AND PHEASANTS.—In reading Mr. Macdonald's note, p. 46, I wondered whether he has tried "Liverpool Virus" for destroying rats. I have found it an excellent destroyer of these pests if used according to the directions given, and as it is harmless to pheasants and other animals excepting mice it is a valuable substance to use in a garden frequented by game. I have to use Pea guards to protect Peas and all kinds of Beans from pheasants. I notice their favourite time for visiting the garden is in the evening before they go to roost, and in the morning when they come down from their perch. It seems as though they like a dainty supper and a delicate breakfast, or perhaps they go where they can get one most easily, for in the middle of the day they are busy hunting in the park. *V.*

PHEASANTS AND PLANTS.—I am enclosing a few growths of Carnations which have been injured by pheasants. I have been greatly troubled with these birds, and at first I attributed the injury to mice, but as I only caught one or two of these animals I thought it was sparrows or possibly a rabbit that was doing the damage. I was puzzled by seeing much of the foliage after it was plucked lying close to the stem and dropped upon the ground, but at last I found the culprits at work and they were pheasants. In May and June I found them most troublesome; they would be round the plants both early and late, so I put some netting over the beds with sticks to keep it clear of the plants. On one occasion a fine cock pheasant found his way through the netting into a bed, and he also found his way out before I could catch him. These birds are also very fond of Tulip bulbs, and if they find them near the surface of the ground they soon clear them all out. I have had to discontinue planting double Wallflowers on account of these birds, which pick off the flower buds as they expand. I have known them to eat the heads of Broccoli and also Lettuce, and they do not object to a few green Strawberries or Apples. *J. Barnard, Mostyn Hall Gardens, Mostyn, North Wales.*

TAR AS AN INSECTICIDE.—I have read with interest the articles on gas tar as an insecticide, pp. 45-50, for use on vines infested with mealy-bug. I have proved this substance to be most effectual and safe, and practise the following method of applying it. After pruning the vines I remove all loose bark and thoroughly wash the rods two or three times with strong paraffin soap, at the rate of half a pint of soap to one gallon of warm water. I next procure some clay and mix it with water to the same consistency as paint, and to one gallon of this mixture add one half-pint of gas tar and well mix the whole. The tar and clay is applied to the vines with an old paint brush, with which the insecticide is rubbed well into all crevices of the vines. I paint the buds also, for I find it does them no harm, the only effect being to retard them for a few days when breaking into growth, which is of little importance compared to ridding the vines of a troublesome pest. Tar is also valuable for keeping wasps out of fruit houses. It should be placed about the houses in vessels and stirred occasionally. Mr. J. A. Huntley states, p. 60, that vines were killed by petroleum. I have seen vines killed by petroleum through using it when the vines were dormant, but it is perfectly safe to apply when the tissues are filled with sap. I have seen excellent results from the use of this fluid. Some badly infected vines were washed with ordinary insecticide, but the bug was not killed. I tied the young growths down, and applied neat petroleum to the old wood, at intervals of about a month. After using the petroleum three or four times not a bug was to be seen. When the vines are in a dormant condition at their roots, the fluid finds its way into the tissues of the vine, and of course failure results, but when the sap is up, it cannot penetrate into the plant, and can then be used with safety. *P. Wilkinson, Hylands, Chelmsford.*

GAS TAR ON FRUIT TREES AND BUSHES.—Discussion on this subject is highly desirable. I should be glad to know if any reader has tried diluted gas tar sprayed on Gooseberry or Currant bushes or Plum trees, to prevent birds from eating the buds. If it would not harm the bushes or trees, it would probably be much more effectual than any mixture containing lime, because it would stick on the buds longer. Possibly also it might prevent the hatching of aphid eggs on Plum and Apple trees, and the eggs of the Apple sucker on the latter, if it did not actually kill them. It is to be presumed that, if safe to use at all, diluted gas tar would be so only when trees and bushes are dormant, as I take it for granted that to coat foliage with it would be highly injurious. Otherwise it might be used to kill or disgust the aphid when actually attacking Plum or Apple trees, which nothing yet tried by me does effectually. Last season I sprayed Apple and Plum trees twice, and in some cases three times, with a strong solution of quassia and soft soap; and yet the aphid attack was only slightly mitigated. A much weaker mixture effectually kills the Rose aphid; but Plum and Apple aphides appear to wear waterproof coats. *South-East Sussex.*

APPLE MINCHULL CRAB.—At the recent meeting at Vincent Square, members of the Fruit Committee were somewhat puzzled over a very fine sample of an Apple shown by Earl Stanhope's gardener, Mr. Sutton, from Chevening Park, and named Minchull Crab. Eventually it was found that the fruit was that of Annie Elizabeth, being conical, well coloured, firm, and handsome. Of all the late Apples grown few can excel this variety for sample of fruit, keeping, or quality. The fruits of the true Minchull Crab are broad and flattish, also green in colour. Old Rogers described them as resembling those of the Deux Ans. The tree is very hardy, never subject to canker, and has a spreading growth. Annie Elizabeth has erect growth. Minchull Crab, like so many other old Apples, has been displaced by much better ones. *A. D.*

MALFORMED CYCLAMEN.—I have a Cyclamen in flower at the present time, and on one of the peduncles, instead of the usual petals, there appears a branch. It has already produced two leaves and two rudimentary leaves. There is a space of half an inch between the two nodes. In the axil of the lower leaf a small spine or hair-like structure appears. Underneath the upper leaf are two roots half an inch long. By its general appearance one would think it is about to form a corm. Is this a common occurrence? *D.* [We occasionally see similar ones.—Ed.]

THE CATTLEYA FLY.—Among the Cattleyas and Lælias this is well known to be a very injurious pest. Its presence is easily detected by the unusual swelling of the young growths when the latter are a few inches long, and if steps are not quickly taken to eradicate it many plants will soon be disfigured. Opinions differ regarding the remedy best to adopt to dispose of this unwelcome intruder. Some recommend the cutting away of the young growths as soon as the unusual swelling is perceived. This I consider the wrong course to adopt; it is quite unnecessary. If only one or two plants were attacked, and one were quite certain that no flies were living in the house, then the cutting away process would be advisable. But if numerous plants suggest signs of their recent visitation, that is evidence that there are flies still living, and as long as living flies remain in the house, one might cut away all the young growths and still be no nearer exterminating the pest than at the beginning, for as other growths are made their work will be carried on as before. The Cattleya Fly, like many other winged insects, may be quickly killed by fumigation, and I have found by experience this is the best remedy to adopt. Though rather expensive in the first place it is cheaper in the end. As soon as it is seen the destructive visitor has arrived, fumigate the house with Richards' XL All Vaporiser twice a week for about five months; any flies present will be killed. Before five months have elapsed all eggs deposited will have changed into larvæ, passed through their various stages, and, becoming flies, meet the same fate as their predecessors. Eight years ago most of the Cattleyas and Lælias in one house here were affected with the Cattleya Fly in a manner I think seldom seen; nearly every young growth had been cut away with no good result. We left the plants entirely alone, and commenced to fumigate with the XL All Vaporiser, and continued the practice for about the time above-mentioned, and not a vestige of fly has ever been seen since. The repeated fumigations during that time caused no injury to the plants whatever. The house then contained Cattleyas, Lælias, Oncidiums, Epidendrums, Miltonias of the spectabilis section, Erides, Sobralias, Cælogynes, Odontoglossum citrosimum and O. Londeboroughianum, Schomburgias, Lycastes, Brassias, Brassavolas, Dendrobilums, and Zygopetalums. *F. W. Thurgood, Rosslyn Gardens, Stamford Hill, London, N.*

STARTING EARLY PEAS ON TURVES.—Although this is an old method, it is a very good one for the gardener who likes to obtain for his employer a few early Peas, especially if adopted in a season like the present, when early planting cannot be recommended, more especially on heavy, cold soils. The time is fast slipping away, but even now it would be an advantage, especially to privileged gardeners who can get plenty of good fibrous turf. The turves should be cut from 1 foot to 15 inches long, and about 8 inches wide; then, if the turves are about 4 inches deep, scoop out about 2 inches of soil through the centre about 5 or 6 inches wide. Sow the Peas, and cover accordingly. The turves should only be placed in very moderate heat. After the seedlings are through and the surface ready to be moved, they should be put into a cold frame, and protected for a time. Gradually but thoroughly harden them off before planting them into prepared trenches. Place sticks to them at once, and protect them with black cotton to keep birds away. I am adopting this method rather largely this season, and the varieties I am planting are English Wonder and May Queen. *W. H. Collett, The Gardens, Huntsham Court, N. Devon.*

CHRISTMAS ROSES: A WARNING.—It has often happened during the early months of the year, when Christmas Roses have been shown in flower at the meetings of the Royal Horticultural Society, that advice has been given to the effect that a good season for re-planting, or dividing and re-planting is so soon as the flowers are over, or when new growth begins. I desire to anticipate such advice being tendered and to utter a word of warning to intending planters. They should wait at least until the end of August next before attempting to plant Hellebores. Two sets of root fibres only are made each year by these plants: 1, the main roots late in summer or early in autumn, and 2, the smaller fibrous roots which form upon the main roots, and which appear about the same time as the new leaves. The matter would be of less importance if these main roots, once broken or cut

off, sent out secondary roots as do many plants, but they do not. Much more frequently when broken or cut in their youthful stages these roots turn black and perish, often to the crown. In this way both sets of roots are sacrificed or much reduced in value, the result being that for nearly a year the plant lives upon itself, so to speak, and therefore is described as "impatient of disturbance." The Hellebore is impatient of disturbance—at a wrong season. *E. H. Jenkins, Hampton Hill.*

SEVENTY SEED PODS ON BEGONIA GLOIRE DE LORRAINE.—Since my calendarial note appeared in the pages of the *Gardeners' Chronicle* on December 15, page 406, I have had many enquiries as to the seeding of this Begonia, and up to that time it seems to have been almost unknown that this variety would reproduce itself from seed. I have read with much interest the notes from various correspondents and their discovery of seed pods. In the year 1899, and just previous to his death, my late lamented friend, "Mr. James Martin" (of Messrs. Sutton's, Reading), mentioned to me that he had found a seed-bearing pod of Begonia Gloire de Lorraine. I felt assured afterwards that the plant would reproduce itself from seed. Now that this is an established fact, there should be no difficulty in procuring seed, which, as stated in my note, and which is based on close observation, will produce plants of a more vigorous habit of growth, and superior quality of bloom also. I have now 70 seed pods, and all are produced on the terminal or last-developed flower. The difference of the male from the female flower is that the latter is quite a round-petaled flower, and has five petals [and a three-winged ovary beneath the flower], while the male flowers have only four petals. This fact will materially assist the uninitiated in finding the seed-producing flowers in both the white and pink varieties. I am much interested in Mr. R. Goodbourn's notes respecting the individual flowers of a variety of B. Gloire de Lorraine 2 inches in diameter. If he succeeds in raising plants of this from seed, they should produce exceptionally fine flowers. *B. Cromwell, Cleveley Gardens, Allerton, Liverpool.*

—I may say without fear of contradiction that I introduced this variety to the district of Liverpool some eight or nine years ago at the Horticultural Society's Show, with a view of instituting a class for competition. At that time I had several very fine pods of seed, fertilised by their own pollen. But professional teachers pronounced the raising of seedlings to be impossible, and I am sorry to say my interest disappeared. Mr. Cromwell appears to attribute the seeding of his plants to having them in a somewhat dry structure. I do not think that alone is the cause. I would rather say the infrequency of seeding is owing to the paucity of female blossoms, and I venture to say female flowers are never produced until the end of the flower raceme is reached, and not in all cases even then. This shows that nature provides a means of perpetuating the plant. I have the variety seeding at present from cross-fertilised flowers. *W. B., Carnatic Hall Gardens, Liverpool.*

SUTTON'S GARDEN SWEDE.—We have given this vegetable a trial, and find it a valuable addition to the root-store. Field Swedes are usually strong in flavour, but the yellow variety as grown in these gardens is as mild as the best of Turnips, and the tops being particularly short require no more space than do the latter. They withstand severe weather better than Turnips, so may be left in the ground until quite late in the spring. The seed should be sown towards the end of July or quite early in August, as the Swede requires a long season of growth. *James Mayne, Bickon Gardens, Devonshire.*

INCREASED APPRECIATION FOR FIGS.—The Fig has a great future in front of it, and for growers in this country. It has so far occupied in the public esteem a similar position to the Tomato of some years ago, which was formerly only appreciated by a few, but is now a popular favourite. The Fig is rapidly becoming a popular fruit, and only needs to be put on the market in sufficient quantity to be somewhat reduced in the price at which it is now offered, and I firmly believe we shall have it as popular as any other fruit, not excepting even the Tomato or Banana. *Laurence J. Cook.*

BLUE WATER LILIES.—The chief drawback to these lovely flowers is that the plants lack the hardiness of the *Nymphaea Marliacea* hybrids, and therefore perish during the winter if not lifted from the ponds and kept in a warm tank during the winter. In many cases they have been flowered in the open water during the summer months even where the water has not been artificially warmed, and in small tanks, through which hot water has been kept continually running, they have remained alive through the winter. According to *Nicholson's Dictionary of Gardening* the blue Water Lilies are *Nymphaea gigantea*, Australia; *N. scutifolia*, Cape of Good Hope; *N. stellata*, Tropical Africa; and *N. zanzibarensis*, Zanzibar. I note that Mr. James Hudson writes: "N. scutifolia is only a varietal form of N. stellata, so far at least as I have been able to form an opinion." It will undoubtedly be admitted by all those interested in horticulture, that if a race of blue Water Lilies sufficiently hardy to withstand the cold of winter in the open water, as do the Marliac hybrids, were introduced, water gardening in this country would gain an added charm, and from the remembrance of visits paid to the Cape some 25 years ago I should say that a hardier variety might be easily obtained. Between Cape Town and Port Elizabeth lie the Outeniqua Mountains, a coastal range, distant from five to ten miles from the sea, from which, every few miles, a clear river flows downwards to the shore, and in these rivers a blue Water Lily, probably *N. scutifolia*, grows. The mountain range is quite low. I should say, from recollection, that the loftiest peaks do not exceed 4,000 feet in height, and every winter they are covered with snow, while in a paper I received a few months ago a heavy snowfall was recorded in the town of George, at the foot of the mountains. Even in February, which is practically mid-summer, the temperature by the water-side in the River Kloop fell very low at 2 a.m., as I well remember, and in the winter the cold immediately around these Lilies must be considerably more severe. Under the circumstances I cannot but think that Lilies imported from this district would prove far harder than those at present under cultivation in this country, and that they would probably pass the winter without harm in sheltered water in the south-west. I remember seeing these Lilies in beautiful flower close to the ford by which I crossed the little River Goukamma, distant a few miles from Knysna. S. W. Fitzherbert.

HISTORY OF SAXIFRAGA BOYDII.—The mention on p. 440, December 29, of this beautiful plant in the obituary notice of the late Mr. J. B. Boyd, in whose garden at Cherry Trees, Kew, N.B., it originated, induces me to pen a further note concerning it. In my articles on the yellow-flowered Saxifrages in the *Gardeners' Chronicle* in April and May of last year I quite forgot to mention the first coloured plate that was given of *Saxifraga Boydii*. This was published in the issue of *The Garden* for July 5th, 1890, and from the text accompanying this plate it is almost certain that Mr. Boyd believed its parentage to have been quite different to that now generally accepted, and Mr. Boyd's opinion held good until the plant first flowered at Kew, when the late Mr. D. Dewar, who at that time had the care of the herbaceous department in that establishment, suggested the parentage now believed to be correct, which is cited in the *Kew Handlist* of hardy plants. This flowering at Kew naturally took place several years after the plant appeared at Cherry Trees, so that even to-day the history of the plant is founded on conjecture, though the grounds, for such supposition are admittedly strong. Mr. Dewar's note in *The Garden* states that Mr. Boyd first considered the parents to have been *Saxifraga Burseriana* and *S. Rochelliana*, both white-flowered specimens. When the plant first flowered at Kew Mr. Dewar wrote to Mr. Boyd suggesting the influence of *S. aretioides* in the hybrid, and Mr. Boyd, remembering the existence of the last-named species in his garden at Cherry Trees, concurred in Mr. Dewar's views. The question might probably be solved by attempting to reproduce a hybrid identical with *S. Boydii* by crossing the above-named species; indeed, I have a seedling that may assist to this end. In Mr. Dewar's article in *The Garden* he refers to *S. Boydii* alba as "undoubtedly of the same parentage, with more of the *Burseriana* blood than of *S. aretioides*, which shows itself in the number of flowers and denser rosettes." Now there is not the slightest

evidence in *S. Boydii* alba, either in the growth of the plant or in its flowering, of any influence of *S. aretioides*, and I much incline to the opinion that the parentage originally given by Mr. Boyd as that of the yellow *S. Boydii*, viz., *S. Burseriana* and *S. Rochelliana*, was in reality that of *S. Boydii* alba. In the flower truss and in the greater freedom of growth there is abundant evidence in support of such a theory, and, again, the much larger rosettes and the quickly-spreading habit support the same view. *Boydii* alba is, however, not a good name for the plant which bears it, and one might reasonably expect just a white-flowered *Boydii* from the name, but in reality it is a totally distinct plant from *S. Boydii*. In the inflorescence the plant more nearly resembles the Italian *S. marginata*, and this likeness directs one at once to *S. Rochelliana*, the very early flowering of *S. Boydii* alba bearing evidence of the influence of the other parent, viz., *S. Burseriana*. *S. aretioides* *primulina* has also been suggested as one of the parents of *S. Boydii*, but I think it has been established beyond dispute that the late Mr. Boyd was not then in possession of this rare and beautiful variety. Whatever the parentage of the two plants in question may be, they have played their part in creating a desire for more. E. H. Jenkins, Hampton Hill.

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

ANNUAL MEETING.

FEBRUARY 4.—The annual general meeting of the members of the above society was held on this date in Carr's Restaurant, 264, Strand, W.C. The President, Charles E. Shea, Esq., occupied the chair. We publish the following

EXTRACTS FROM THE REPORT.

The names of 60 new members have been added to the roll during 1906.

The customary three exhibitions were held at the Crystal Palace in 1906. The outstanding feature of the shows was the increased attention given to single and decorative blooms, which fully justified the committee's action in extending the classes for these varieties in the schedule.

The exhibition of market Chrysanthemums held at the Foreign Flower Market, Covent Garden, W.C., on Wednesday, December 12, by permission of His Grace the Duke of Bedford, K.G., was very successful.

The shows for 1907 have been fixed for Wednesday and Thursday, October 2 and 3; Wednesday, Thursday and Friday, November 6, 7, and 8; and Wednesday and Thursday, December 4 and 5. Negotiations are now taking place with the Crystal Palace Company for the holding of these shows there. The Market Show for 1907 will be held on Wednesday, December 11.

One hundred and eighty-five new varieties were exhibited at various exhibitions, but the committee only felt themselves justified in granting First Class Certificates in 34 cases.

On the recommendation of the Publication Subcommittee, your Executive Committee resolved to issue a Year Book early in 1907. This Year Book will contain articles from the pens of leading English, American, and Australian authorities on Chrysanthemum culture, numerous illustrations and statistical information of the highest value to exhibitors and growers, besides a series of critical and literary contributions on many subjects of interest connected with the Chrysanthemum. Mr. C. Harman Payne and Mr. Chas. H. Curtis have acted as hon. editors of this publication, which is now in the press. Copies of the book will be forwarded free to all members of the society as soon as they are received from the printers.

Your committee have taken the necessary steps to institute a "Dean Memorial Medal." The cost of the die has been defrayed by voluntary contributions, and a balance is still in hand to pay for the medals that may be awarded.

A new degree of membership is suggested, viz.: "Corresponding Member," and it is proposed that this degree of membership should be conferred on such persons as have a special knowledge of the Chrysanthemum, and are thus able to give the society the benefit of their knowledge if, and whenever, applied to.

FINANCE.

The balance-sheet shows total receipts from all sources of £608 16s. 10d., including £147 6s. received as members' subscriptions for 1906, and the grants from the Crystal Palace Company. On the other side of the accounts, prize-money was responsible for the expenditure of £122 10s., printing £79 13s., medals and engraving £86 17s. 2d., judges' fees and luncheons £36 5s., salaries £125, &c.

The report and balance-sheet were passed without comment, save the introductory speech of the proposer, Mr. Thos. Bevan, who announced that the balance-sheet was further brightened owing to the Crystal Palace Company having, since the report was published, paid nearly the whole of the money promised in 1906, and this has enabled all the prize-winners to be paid in full. They had agreed with the Crystal Palace Company to hold their exhibitions for 1907 at Norwood, and for this they were to receive £200 from the Palace authorities. A small saving would have to be made in the schedule.

The President remarked that, all things considered, the report and balance-sheet were satisfactory, but there was an absence of progress recorded, and he asked why. As a comparison, he instanced the progress the Rose Society is making, although the Rose has no greater claims over the Chrysanthemum. He was a firm believer in the need for the society publishing literature on the subject of the Chrysanthemum, for the *Year Book* of the sister society laid the foundation of much of its recent progress; indeed, from a single copy displayed on the speaker's own table, 15 persons had been induced to join the N.R.S. Competitive exhibitions were, however, the life of such societies as theirs, and he desired to see the society cater more and more for the small exhibitor. In some of the small classes of the Rose Society from 30 to 35 exhibitors were found, and in all likelihood these small classes would be further divided to attract a still further number of smaller growers.

AMENDED RULES.

The rules of the society were presented to the meeting in an amended form, and were carried *en bloc* without discussion. The principal alterations are in defining the duties of the respective officers and committees.

On the proposition of Mr. Bevan, Chas. E. Shea, Esq., was again elected president of the society. Mr. John Green was elected treasurer in the place of the late Mr. Taylor, and a vote of sympathy was passed with the family of the late treasurer, to be forwarded in the name of the meeting. Other officers were elected as follows:—Mr. Thos. Bevan, chairman of committees; Mr. E. H. Hawes, vice-chairman, in the place of Mr. J. H. Witty; Mr. C. Harman Payne, hon. foreign corresponding secretary; and Mr. Richard A. Witty, general secretary. The following gentlemen were appointed to fill vacancies on the committees:—Messrs. W. O. Hiehle, Geo. Heming, Geo. Cassidy, A. Hemmley and J. H. Witty.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 24.—*Present:* E. Ashworth, Esq. (in the chair), and Messrs. Sander, Warburton, Rogers, Shill, Keeling, Upjohn, Cypher Ward, Thorp, Cowan, P. Smith, Williamson, Parker, and P. Weathers (hon. sec.).

Ten degrees of frost did not prevent some of the more enthusiastic members sending exhibits.

A. WARBURTON, Esq., Haslingden, obtained a Silver Medal for a group, and Awards of Merit for *Cypripedium* × *Miss Louisa Fowler* and *C. x Traceyanum*. *C. x aureum virginale* was also shown from the same collection and the previous award of a First-Class Certificate confirmed.

Messrs. J. CYPHER & SONS, Cheltenham, staged a really good group, which gained a Silver-Gilt Medal. A pretty collection of the white varieties of *Laelia anceps* was included in this group.

Messrs. CHARLESWORTH & Co., Bradford, exhibited their new and beautiful hybrid, *Brassocattleya* × *Queen Alexandra*, which obtained a First-Class Certificate, and the same firm received an Award of Merit for *Cypripedium* × *Mrs. Fred Hardy* "magnificum."

Messrs. SANDER & SON, St. Albans, received an Award of Merit for *Saccolabium bellinum giganteum*.

G. F. MOORE, Esq., Bourton-on-the-Water, exhibited *Cypripedium* × *G. F. Moore*, a hybrid between *C. x Sallieri* × *C. Mrs. Mostyn*, to which an Award of Merit was granted.

Messrs. KEELING & SONS, Bingley, Yorks., staged a small group of Orchids. P. W.

CARDIFF & COUNTY HORTICULTURAL.

JANUARY 29.—This progressive society held its annual meeting on the above date, under the presidency of Mr. Vernon Hill, J.P. After payment of all liabilities a credit balance of £204 is carried forward. The report and balance sheet were adopted, and the date of the next show fixed for July 24 and 25, at which a challenge cup, value ten guineas, will be offered for herbaceous flowers. Sweet Peas, a strong feature in last year's show, will be strengthened by an audit class, for which the National Sweet Pea Society are offering a gold and silver medal. Sir John T. Dillwyn Llewelyn, Bart., was appointed president for the ensuing year, and the other officers were also appointed. The retiring members of the executive committee were re-elected.

Obituary.

JOHN WALLIS.—We have received news of the death of this well-known and respected gardener at the age of 70 years, which occurred on the 4th inst., at Woore, near Newcastle-under-Lyme. Considerations of time and space will only permit us, for the moment, to express our regret upon this sudden termination of a very short illness.

ENQUIRIES AND REPLIES.

HOUSE FOR CARNATIONS.—Will some readers please give their views on the best kind of house for Carnation growing? I am thinking of building a span-roofed structure with a division, one part to be occupied with Souvenir de la Malmaison, and the other with tree Carnations. What are the most suitable dimensions? What would be the approximate cost per foot run of such a house? I do not want an expensive house, but hope to get efficiency with economy. *Enchantress*.

VALVE FOR USE IN POND.—In reply to *Aquatic*, see p. 79, a simple and effective valve for use in the pond can be made as follows: Procure two circular iron rims about 2 inches wide and three-eighths of an inch thick, made to bolt tightly together. Between the two iron rims should be placed a stout leather or rubber washer of such a size that there is about an inch of material on the inner edge of the iron all round, to form a seat for the ball valve, which should be made of stone properly turned and provided with an iron ring. There should be a dip in the pond bottom at the point where the valve is to be built in, as then all that is necessary to stop the outlet is to drop in the stone ball anywhere within a foot or two of the outlet when it will immediately roll into position. By this means the pond can be either emptied or lowered to any desired point. The outlet to valve that I have in mind was, as nearly as I recollect, 6 inches in diameter and the stone ball about 9 inches in diameter. It was made and supplied by Messrs. Pulham & Sons. W. C., Cransford.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

ACACIA JULIBRISSIN: *Lexden*. The correct name of this plant is Albizzia Julibrissin. It is a native of the Orient and is commonly known under the name of "Pink Siris." You need not be alarmed at your young plants losing their leaves, as this species is deciduous during the winter months, and it would be advisable that they should be placed in cold frames in preference to a greenhouse during the next few months. The plant is of very easy culture, thriving in almost any sort of soil, and is able to withstand 10 or 12° of frost with impunity when it has become old and woody. The young plants are more tender and require protection until a few years old. The best plan to succeed with this species in your locality is to grow the plants on in pots for two years, and afterwards plant them out at the foot of a wall facing to the south, affording some protection during severe weather.

BEGONIAS: *F. J. R.* You have not sent specimens, but we suspect that the rusty appearance you complain of is caused by mites. Immerse the plants in Tobacco-water.

CHAMÆROPS: *J. C.* You may certainly let the Palm flower, and set fruits if it will. The result will be nothing worse than a slight and temporary hindrance to growth.

CLUB IN CABBAGES: *T. W. B.* Some cultivators, when planting out young Cabbages, take the precaution to "puddle" the roots in a mixture of soot, lime, and earth, made with water to the consistency of paint. We expect you refer to this practice, which is to be recommended, not only as affording some protection against fungus, but in helping the plants to withstand drought for a time whilst making new roots.

GRUB IN PEAR SHOOT: *J. C.* The grub is that of the wood leopard moth, *Zeuzera æsculi* (fig. 44), described in the *Gardeners' Chronicle*, p. 236, April 11, 1846. The larva is somewhat similar to that of the goat-moth, but it is much smaller, being only 1½ inch long, fleshy, and of a yellow colour. The larvæ live in the trunks of various trees, including Apple, Pear, Horsechestnut, &c., and it derives its specific name from the last-named. The moths are hatched about the

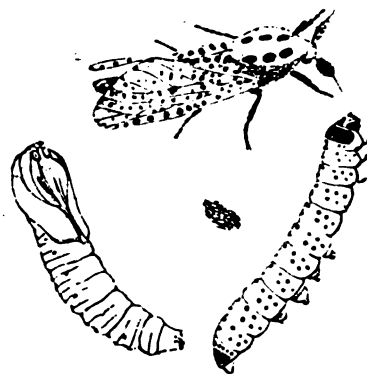


FIG. 44.—THE WOOD LEOPARD MOTH: LARVA, PUPA, AND EGGS.

end of June, and are found until the end of August. Many of the eggs are laid in July and the larvæ issue from them so as to cast their skin in September, and arrive at maturity the following June. The best plan to kill the larva is to pour a few drops of bisulphide of carbon in their burrows; they may also be removed by means of a piece of hooked wire, or killed by pushing a stiff rod of wire or iron in their holes.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* FRUITS: *Daniel Bros.* Cullen.—*J. C. W. & Son.* Orange Goff.

PLANTS: *F. E. S., Oxon.* *Cypripedium insigne* of the good original type. It is sometimes called variety *sylyhetense* in gardens.—*C. E. F.* *Epidendrum angustifolium*.—*F. P. O.* 1, *Adiantum trapeziforme*; 2, *Adiantum formosum*; 3, *Polypodium aureum*; 4, *Pteris cretica*; 5, *Selaginella viticulosa*.—*J. H.* 1, *Cypripedium javanicum*; 2, *Cypripedium siamense*; 3, *Lycaste tricolor*; 4, *Oncidium altissimum*; 5, *Oncidium mulus*; 6, *Odontoglossum Wallisii*.—*E. C.* *Lastrea filix mas cristata*.—*J. L.* 1, *Salvia fulgens*; 2, hybrid from *S. splendens*.

PLANTS SUITABLE FOR A JAPANESE GARDEN ON THE PACIFIC COAST OF N. AMERICA: *J. T.* As the maximum and minimum temperatures given are 80° max. and 60° min., it should

be possible to grow almost any plant that is indigenous to mid and southern Japan. The Pacific or western slope of the Rockies affords an almost ideal climate, which, and especially in the centre and south, affords what is needful, namely, an abundant rainfall, which is tempered by south-westerly winds that blow from the ocean. The whole family of Bamboos should thrive there in the greatest luxuriance, as they do along the Riviera, where they may be seen in the finest possible condition not far away from the Mediterranean. The best of those which do well even in this country are *Arundinaria fastuosa*, A. Falconeri, A. anceps, A. nitida; *Bambusa palmata*, B. tessellata, B. japonica, B. Fortunei variegata, *Phyllostachys aurea*, P. nigra, P. mitis, P. viridi-glaucescens, P. Quiloi, P. Castillonis, P. Henonis, and many others, but those given are in this country well-proven kinds. *Cycas revoluta*, which forms a very fine feature in many Japanese gardens, should be quite at home. So also would the following Palms:—*Chamærops Fortunei*, *Rhapis humilis*, R. flabelliformis, *Livingstonia chinensis*, and *Cocos flexuosa*, as well as C. Jatai (syg. C. australis). *Cocos flexuosa* delights in semi-shade, whilst C. australis needs the full sun, and thrives amazingly in a dry, arid spot. That well-known decorative plant, *Aspidistra lurida variegata*, would do well for a groundwork. Note also should be made of the whole of the *Eulalia* genus for producing early effect and removal later on. For groundwork also the whole race of *Funkias* are most useful, thriving in moist, shaded spots. For the open, *Fatsia* (*Aralia japonica*) and its variegated form are both effective. Of the Japanese *Coniferae* there is a host of good things, too numerous to specialise, but these will be found amongst the *Retinospora*, the *Thuja*, the *Pinus*, and the *Picea* genera. These are most valuable in any garden, not only the types in their dense green shades, but in the golden and glaucous variations which many have assumed. The deciduous Larch (*Larix leptolepis*) is a great favourite with the Japanese, it being most amenable to tortuous twistings and contortions, whilst it is most beautiful when naturally grown, especially in the bud stage and early formation of the leaf, by reason of its colour. Almost every Japanese garden contains one or more forms of *Rhodesia japonica*. Japanese Maples should be included, and they will thrive in this country very well, but in the locality under consideration they ought to do even better and the colours be intensified. Of flowering plants it may be said the choice is quite bewildering. Of *Aquatics* the *Nelumbium speciosum* should certainly be tried, and the *Sagittaria japonica*. Of semi-aquatic plants, *Iris Kämpferi* only requires to be named. Of climbing plants there are many, the *Wistaria* and the *Clematis* being prominent. Ferns in variety for shady positions should be noted: of these there is a wide choice. The flowering Cherries of Japan are notable features, being greatly appreciated there. *Azalea mollis* is quite indispensable, whilst the Japanese *Magnolias* are a host in themselves, such, for instance, as *M. conspicua*, *M. stellata*, *M. hypoleuca*, and *M. Watsoni*. For moist spots the *Magnolias* and the *Hydrangeas* should be chosen. In the more favoured positions the Japanese Orchids ought certainly to have a place. *Camellias* should thrive well also, and likewise the *Pæonies*: these are typical Japanese plants. Fruit-bearing plants should not be omitted in such a climate. Of these the Citrus in variety claims notice for both edible and decorative purposes. Of *Diospyros Kaki* and of *Prunus* there are several notable varieties that are useful.

VIOLET ROOTS: *C. S.* There is no fungus disease in the Violets. The blanched roots are caused by some physical or chemical cause, as there is no fungus there.

COMMUNICATIONS RECEIVED.—H. Henkel, Darmstadt.—S. P. Ch. Vuylsteke.—T. J. D. H. H.—S. H.—D. H. H.—H. S. (Yorkshire)—J. W. M.—W. E. B.—A. D. R.—E. A. D. W.—H. W. W.—D. B. and Son.—F. P.—W. R.—F. M. W.—H. R.—J. D. G.—T. W. B.—J. C.—W. P. R.—H. M.—T.—W. H.—J. G.—F. W. S.—H. G.—J. D. N. (seedless Apple)—L. E. N.

For Market and Weather Reports see page xvi.



THE Gardeners' Chronicle

No. 1,051.—SATURDAY, February 16, 1907.

CONTENTS.

Alpine garden—	100	Orphan Fund, Royal	110
Ranunculus rutæfolius	100	Gardeners' ...	110
Apple, a seedless	105	Plants, new or note-	
Apple, Minchull Crab	107	worthy—	
Araucaria imbricata with		Woodwardia para-	
erect branches	100	dosa	98
Aspidistra punctata	107	Presdales, Ware	97
Banana, a hardy	101	Rhubarb, Crimson Win-	
Callispyche mirabilis	101	ter	106
Corynostylis hybanthus	101	Rubus species, with	
Cottage gardeners	105	white bark	107
Cypripediums, Mr.		Ruellia Portellæ	101
Drewett's	100	Seed-sowing	106
Daffodil "blindness"	107	Societies—	
Daphne indica and	101	Horticultural Club	109
varieties	107	Royal Horticultural	104, 107
Flora of New South Wales	105	Scottish Horticultural	109
Foster, Sir M., the late	104	Sweet Peas	106
Gardeners, the future of	104	Tree Wash, the Woburn	98
Gas tar as an insecticide	106	Trees and Shrubs—	
Hydrangeas, blue	106	Torreya, seedling	99
Kew notes		Veitch Memorial Trust	104
The greenhouse	100	Week's work, the—	
Lord Howe's Island	105	Flower garden, the	108
Nymphæa atro-purpurea	104	Fruits under glass	102
Obituary—		Hardy fruit garden	108
Kuntze, Dr. Otto	105	Kitchen garden, the	102
Morrison, George	110	Orchid houses, the	108
Wallis, John	111	Parks and gardens	108
White, Lynch	111	Plants under glass	109

ILLUSTRATIONS.

Araucaria imbricata with upright branches	100
Cologynne Coliaanii	108
Cypripediums, a house of	99
Morrison, Geo., the late	110
Musa Basjoo (syn. japonica)	101
Nymphæa atro-purpurea (Supplementary Illustration)	
Wallis, John, the late	111

PRESDALES.

CHARMINGLY situated on high ground amidst sylvan and floral beauties, and within a short distance of the old and somewhat picturesque town of Ware, is Presdales, the Hertfordshire home of Albert G. Sandeman, Esq. It is approached from two separate points from the Ware to Hertford Road past two commodious lodges, one at each entrance. The house—a view of which was given in the *Gardeners' Chronicle* for September 27, 1902, p. 229—is a modern built and picturesque edifice in the Elizabethan style, and commands pleasant views from the terrace of near and distant scenery, including beautifully wooded hills and green dales. The walls, consisting of dressed stone, are clothed on the south front with flourishing trees of *Magnolia grandiflora*, *Ampelopsis Veitchii*, closely-trimmed Ivies, Jasmines, Roses, &c. From the terrace mentioned, two separate flights of stone steps lead down to the principal flower garden, Rose border, and ornamental water. The flower beds—including an isolated, oblong bed, having a background of the white-flowered Japanese *Anemone* (Honorine Jobert), with scarlet-flowered tuberous-rooted *Begonias* in front, and a broad edging of *Centaurea candidissima*—were, at the time of my visit (September 1), gay with a pleasing combination of colour, and which, viewed in con-

nection with an extensive area of well-kept sward and the pleasing and varied surroundings, made a picture of much beauty, and one which it would be hard to excel in the county of Herts. The fountain occupies a central position in the flower-garden proper, and was surrounded by a large band of well-flowered white *Marguerites*. The beds were filled similarly in pairs, some with the silver-leaved *Pelargonium Flower of Spring*, and edged with a band of Golden Fleece *Fuchsia*, others having centres of pink-flowered *Pelargonium Christine*, with a band of the velvety dark-foliaged *Coleus Verschaffeltii* and an outer edging of blue *Lobelia* (*pumila magnifica*). Two similarly shaped beds had centres of light-flowered *Fuchsias*, with a surrounding broad band of *Henri Jacoby Pelargonium*, and they were edged with a small silver-leaved *Pelargonium* of the Princess Henry of Battenberg type. Small beds filled entirely with the bronzed-leaved *Pelargonium Her Majesty* contrasted effectively with the mixed beds. Two round beds on the terrace planted with *Phoenix Palms* in their centres, and filled with finely-flowered yellow *Antirrhinums*, and edged with mauve-coloured *Ageratum*, were objects of great beauty, as were also other beds close by filled with *Henri Jacoby* and double white *Pelargoniums*, and edged with blue *Lobelia*. Large vases on the terraces were filled with white *Marguerites* and edged with *Madame Crousse Ivy-leaved Pelargoniums*, the flowering shoots of the latter, with their large trusses of satiny pink-coloured flowers, intermixing with the *Marguerites*, and depending gracefully over the edges of the vases. Several large vases occupied positions on either side of the principal walks in the kitchen garden, and these were filled with *Marguerites* and *Heliotropes*; smaller vases were also filled with *Marguerites*, but edged with *Souvenir de Charles Turner Pelargoniums*, bearing large trusses of corise flowers that hung effectively over the sides of the receptacles. Ornamental tubs, standing in close proximity to the front entrance of the mansion, were filled with *Henri Jacoby* and *Jeanne d'Arc Ivy-leaved Pelargoniums*, the beautiful white flowers of the latter, suffused with light lavender, showing in contrast to the large crimson trusses of the former.

Nature has done much for Presdales, and the landscape gardener, Marnock, made the most of the natural beauty of the place. But the ground space immediately in front of the mansion and adjoining the lower flower garden was subsequently extended by Mr. Sandeman, as hitherto the area of the ornamental grounds in that direction was considered to be too confined, and therefore did not show to advantage the picturesque pile of buildings in the background. Many fine trees, including a handsome young specimen of *Cedrus atlantica*, were observed in the grounds during the writer's hurried visit.

THE KITCHEN GARDENS

are about 3 acres in extent, two of which are enclosed by walls, which are well furnished with choice and well-trained fruit trees. The kitchen garden contained crops of seasonable vegetables, including good breadths of *Veitch's Autumn Giant Cauliflower*, and several varieties of *Broccoli*, *Cabbage*, *Brussels Sprouts*, *Winter Greens*. Several rows of *Celery*, planted at from 4 to 5 feet apart, were observed, the ridges being occupied with rows of *Lettuce* in various stages of development, some close, solid heads being ready for use. Good beds of *Onions* were also noted, the bulbs being of a large size, firm, and well ripened, ready for harvesting. *Lettuce* and

Endive were observed growing in wide borders in front of walls having a south aspect. A portion of these plants were intended for lifting towards the end of October for transplanting into cold pits, from which frost and heavy rains can be excluded, for yielding supplies during the winter and early spring months. Every provision is made by Mr. F. Noyce, the gardener, to meet the requirements of a large establishment in the matters of high-class vegetables and fruits in all seasons. A 2-acre field attached to the gardens was largely devoted to the production of *Potatoes*, several long rows of *Broccoli* (*Veitch's Model*), *Brussels Sprouts*, &c., being grown in the remaining portion. Of the *Potatoes*, Mr. Noyce spoke highly of *Sutton's May Queen* as a reliable variety for yielding early supplies of good quality tubers, and the heaviest croppers with him are *Carter's Snowball*, *Windsor Castle*, *Sir John Llewellyn*, *Ninetyfold*, and *Sutton's Satisfaction*.

FRUIT TREES.

Apples are grown on either side of the wide gravel walks in the kitchen gardens. The trees (of leading varieties) are good-sized specimens, and were carrying heavy crops of fine-quality fruit; the branches had been subjected to judicious annual thinning and shortening of the current year's growths. Plums of the varieties *Jefferson's*, *Washington*, *Kirk's*, *Coe's Golden Drop*, *Guthrie's Gage*, &c., were fairly plentiful on trees growing against walls facing east and west, as were also *Morello Cherries* on trees trained on north walls; the crops of sweet *Cherries* had been plentiful on trees occupying a wall facing westward, the varieties grown being *May Duke*, *Black Eagle*, *Frogmore*, *Bigarreau*, *Governor Wood*, *White Heart*, &c.

The finest, healthiest, and best managed lot of *Peach* and *Nectarine* trees that I have seen for several years past were noticed. The trees were furnished from the ground line with fruitful, well-trained branches and large healthy foliage, and had borne good crops of fruit. Some of the trees, such as *Violette Hâtive* and *Sea Eagle*, were, at the time of my visit, ripening their fruits. The ground, for a space of about 3 feet from the wall, was heavily mulched with half-decayed manure, and liberal waterings afforded during the summer months had washed the soluble particles of the manure down to the roots with most satisfactory results. Among the *Nectarines* grown at Presdales are *Rivers' Early*, *Pineapple*, and *Dryden*.

A wall having a south or south-west aspect furnished a picture of healthy, well-trained, heavily-cropped, cordon *Pear* trees, the sight of which in itself well repaid a visit to Presdales. The trees, 61 in number, are trained obliquely, and they were all carrying heavy crops of large, handsome, well-developed fruits of the respective varieties. These consisted of *Durondeau*, *Fertility*, *Souvenir du Congrès*, *Emile d'Heyst*, *Duchess d'Angoulême*, *Beurré Bachelier*, *Beurré d'Anjou*, *Doyenné du Comice*, *General Todleben*, *Olivier de Serres*, *Princess*, *Pitmaston Duchess*, and *Nouvelle Fulvie*.

PLANT AND FRUIT HOUSES.

The glasshouses are conveniently situated at the north end of the kitchen garden, and consist of plant, stove, *Carnation* house, *Marguerite* house, *Fernery*, greenhouse, and *Palm* house, two vineries, *Melon* house, in three divisions, orchard house, besides numerous pits and frames. A nice lot of foliage and flowering plants, including brightly-coloured *Dracænas* and *Codiaeums* (*Crotons*) in variety, were

observed in the stove, all being, like the Ferns and all the other plants cultivated under glass at Presdales, of a decorative character for use in the residence. A good batch of Malmaison and perpetual flowering Carnations were observed in a house devoted to their culture, and in a span-frame close by were a quantity of flourishing young layered plants nearly ready for potting. The old plants had been turned out of their pots, and they were planted in about 6 inches deep of lightish mould and the shoots layered therein, the soil having been first surfaced with sand.

In the vineries were hanging bunches of Madresfield Court, Black Alicante, and Mrs. Pince's Black Muscat, the bunches of the latter being larger and better coloured than is generally seen in this fine late Grape.

Melons were flourishing on the single-stem system of training in one house, the fruits of Royal Jubilee, Earl's Favourite, and Lockinge Hero, being good specimens of skilful culture. Tomatos growing in narrow boxes in one of the houses and trained to a trellis a short way up the roof were bearing heavy crops of large, even-sized fruits, the varieties being Sutton's Perfection, Sutton's A1, and Polegate. The fruits of the latter variety are large, but irregular in shape. Other plants of the same varieties, with the addition of Up-to-Date, were planted in the open and trained singly and obliquely against the front wall of the same house, and bearing heavier crops of equally fine fruit than the plants growing inside. In both cases the lateral growths were kept persistently pinched and the foliage shortened back. By training the single-stemmed plants obliquely, a greater length of stem was obtained than could otherwise be secured, and the check thus given to the flow of sap ensured a better and more regular development of flower-trusses and a better setting of fruits than would otherwise be obtained.

Growing mostly in 10-inch pots were noticed several hundred plants of Chrysanthemums, not intended for large exhibition blooms, but for yielding a plentiful supply of cut flowers during the winter months. Other winter-flowering subjects were also observed growing in borders, and, like the Chrysanthemums, in pots, standing on the gravel walks and such like places, ready for removing to the glasshouses in due time. Well-established plants of Marie Louise and Princess of Wales Violets, growing in borders, were ready for transferring to pits and frames occupying sunny aspects towards the end of September or early in October.

The young gardeners are comfortably housed and well cared for, as, indeed, are all the employees on the Presdales estate.

Evidences of cultural skill, good management, and perfect order were noticeable in every department of this beautiful estate, and proved the capabilities of the gardener, Mr. Noyce, and the efficiency of his staff. *H. W. Ward.*

PLANT PORTRAITS.

ODONTOGLOSSUM CRISPUM VAR. *JEAN LINDEN* AND VAR. *MME. LINDEN*.—*Tribune Horticole*, January 26.

PTERIS LUCIDA *MEDIO-PICTA*.—The supposed result of a cross between *P. serrulata* and *P. cretica* Wavrinii. The fronds have a pale-yellow blotch on a green ground, suitable for the decoration of apartments.—*Revue de l'Horticulture Belge*, February 1.

CERATOLOBUS CONCOLOR.—A rare Sumatran Palm cultivated with difficulty. Lately certificated at Ghent.—*Revue de l'Horticulture Belge*, February 1.

CELSIA ARCTURUS.—A well-known greenhouse plant with yellow flowers like those of a *Verbascum*.—*Revue Horticole*, February 1.

BEGONIAS, CRESTED VARIETIES.—*Tribune Horticole*, February 2.

CYPRIPEDIUM INSIGNE *SANDER*.—*Garten Flora*, February 1.

BILBERGIA NUTANS, HYBRID FORM OF.—*Garten Welt*, February 2.

NEW OR NOTEWORTHY PLANTS.

WOODWARDIA PARADOXA, SP. NOV.*

A SPECIMEN of a new species of *Woodwardia* has been received at Kew from Mr. F. W. Moore, A.L.S., of Glasnevin, who states that it is an evergreen Fern from a small island off Vancouver Island. Its fronds are narrower than those of the common *W. radicans*, J. E. Smith, to which it bears much resemblance in the cutting of its pinnules, but differs in having the veinlets perfectly free from the sorus to the margin as in *W. virginica*, J. E. Smith. The geographical distribution of these two last-mentioned species is very different. *W. radicans* encircles the northern hemisphere, and has for its northern limits Spain, Italy, North India, South China, and California, while *W. virginica* is confined to the eastern half of the North American continent and Bermuda, extending northwards to Nova Scotia and Ontario.

The oblong-lanceolate acuminate frond is 3 feet long and 9 inches wide at the middle, and has the lower pinnæ conspicuously reduced. The lanceolate pinnæ are about 6 inches long and 1½ inch wide, and spring from the rachis at an angle of about 45°, the lobes are nearly 1 inch long and ½-inch wide, serrate at the margin, and bearing about six sori on each side of the midrib. The whole frond is glabrous and destitute of scales. Its rootstock I have not seen. *C. H. Wright, Kew.*

THE WOBURN WASH.

As many fruit-growers will now be applying a winter wash to their trees, I should like to make known an important improvement which has been effected in the Woburn wash, although further investigation may still be necessary to perfect this improvement. The original wash consisted of a combination of caustic alkali with paraffin emulsion, and contained two per cent. of caustic soda, six per cent. of paraffin, and half per cent. of soft soap. The paraffin was first emulsified with half its volume of water, in which the soap had previously been dissolved, and the emulsion thus obtained was then added to the rest of the water with the soda dissolved in it. The only difficulty in using the wash lay in the fact that the soft soap was converted by the soda into hard soap, which, with the paraffin (still partially emulsified), rose to the surface as a scum, and rendered constant agitation necessary. Judging from the excellent results obtained, and the absence of any injury to the trees when the wash was used, either with a tank or a knapsack machine, this difficulty was not very serious; yet it certainly was a drawback, and, as indicated in our report, the search for some suitable emulsifier other than soap was very desirable.

Recent work in America has shown that lime will emulsify paraffin with water. This has formed the starting point of a somewhat long series of investigations, the conclusion of which is that, although lime cannot be used very satisfactorily as a substitute for soap in the Woburn wash, there are other somewhat analogous substances which can be so used, and which give a wash answering all requirements. The substances investigated include various hydroxides

(lime is an hydroxide of calcium), carbonates and basic sulphates. The two which I will mention now—though they may not eventually prove quite the best—are the basic sulphates of iron and copper.

Soda emulsions containing these may be prepared as follows:—Take sulphate of iron (copperas) or sulphate of copper (blue vitriol), 1½ lb.; quicklime, 6 oz.; paraffin, 5 pints; caustic soda, 2 lb.; water, 9½ gallons. Dissolve the sulphate of iron or copper in the water by suspending it in a bag of sacking overnight; at the same time put the lime in a jar with enough water to not quite cover it. Next day, when the sulphate is dissolved and the lime slaked, add a little more water to the latter, to make it into a milk, and pour it into the sulphate solution. Add the paraffin and churn the mixture with a garden syringe. One or two strokes of the syringe are sufficient to produce a perfect emulsion. The soda may then be added and the whole mixed well together. If the soda is in the powdered form, it may be added while solid to the water; if it is in large lumps, it should be dissolved separately in a portion of the water reserved for that purpose.

It is possible, in the case of the iron emulsion, to dispense with the lime, substituting for it another ½ lb. of caustic soda (to be added before the paraffin is put in); but the emulsion thus obtained is not so fine as that produced by the use of lime. With the copper emulsion such a substitution is not possible. The iron emulsion is considerably finer in character than the copper one, but the latter possesses the advantage of containing a fungicide of recognised value: it contains, in fact, normal Bordeaux mixture, and is a combined insecticide, fungicide, and destroyer of moss and lichen. Either emulsion will remain for hours without any appreciable rising to the surface, and, even when such rising has occurred, the slightest agitation will suffice to restore uniformity to the mixture. We have not yet found any indication of de-emulsification—i.e., of the separation of the paraffin from the emulsion.

The proportions of the constituents may be modified if desired. The copper sulphate may be doubled in amount, if a more energetic fungicidal action is required, but the lime used should be increased in a corresponding degree. The paraffin may be increased or diminished without affecting the emulsification, and the proportion of soda also may be varied, but 2 per cent. is the smallest amount which will ensure the removal of moss, &c., whilst more than 2 per cent. gives so caustic a liquid that danger is involved to the workmen using it. In the *Journal of Horticulture* for January 31 the proportions given for these washes differed slightly from those given here; the present recipes represent the results of further work on the subject.

The chemical and physical problems presented by these emulsions appear to be very interesting, but at present very obscure. The mere fact, however, that emulsions can be made so easily and so perfectly with a large number of precipitated solids, is a matter of great practical importance, as it will give fruit growers and gardeners a new weapon of attack for pests in general. Only one of the several curious points connected with these emulsions need be mentioned—namely, that the chemical character of the precipitate in the case of the iron and copper washes—and, consequently, the character of the emulsion—is affected by the nature of the paraffin used. The best results, so far, have been obtained with a solar distillate supplied by the Hope Chemical Works, Hackney Wick. This costs 4½d. the gallon, and is not reckoned as an inflammable for transit purposes. *Spencer Pickering, Woburn Experimental Fruit Farm.*

* *WOODWARDIA PARADOXA*, C. H. Wright, sp. nov.: *W. radicans*, J. E. Sm., similans, venulis autem inter soros marginibus non anastomosantibus recedit. Frondes oblongo, lanceolati, acuminati, circa 90cm. alti, 22cm. lati, glabresquissimi, perennantes. Pinnæ lanceolatae, 15cm. longae, 3.5cm. latae, erecto-patentes; lobi oblongi, leviter falcati, fere 2.5cm. longi, 6mm. lati, acute serrati. Sori circa 6 subius utroque latere positi, elliptici.—Small island near Vancouver Island.

TREES AND SHRUBS.

TORREYA CALIFORNICA.

THIS Taxaceous tree, sometimes called *T. Myristica*, and by some placed in the genus *Tumion*, does not do well, as a rule, in this country, though probably in the south-west and in Ireland it might be cultivated as an ornamental evergreen. It is a native of California, where it occasionally reaches a height of 100 feet. It was introduced to this country by William Lobb for Messrs. Veitch. Up to this time we have not noticed much variation in individual specimens, nor are any mentioned in the Kew Hand-list, and Mr. Bean informs us that variation has not been noticed in the specimens grown at Kew.

We were in consequence the more surprised at receiving lately from Messrs. Croux et Fils,

distinguished from all the rest by its closely set, dark green, arching, relatively short foliage, which gives a plumose appearance to the branches.

The branches are ascending, bark of old shoots deep purple, that of the herbaceous shoots green. Buds ovoid compressed; scales conduplicate coriaceous, suborbicular reddish-brown glabrous. Leaves densely arranged, spreading horizontally 25 to 30 millimetres long, deep-green, much curved from base to point, linear oblong, spine-tipped convex on the upper surface.

2. Branches spreading dense, bark of old shoots reddish, of new shoots green. Buds ovoid acute compressed scales coriaceous deltoid-ovoid acute chestnut brown, with a narrow white margin. Leaves spreading or slightly ascending, 5 centimetres long 4 millimetres broad, straight, linear, acute, spine-tipped, deep green above, or in some leaves yellow, with a

This is described as of more regular habit than No. 3, with green foliage and more dense (etouffé) than in No. 2.

5. Branches ascending, lax; bark of the young shoots green, becoming reddish-brown when older. Buds ovoid, compressed, scales coriaceous suborbicular, pale brown. Leaves ascending, 25 to 40 millimetres long, linear, straight, 5 millimetres broad, shortly spine-tipped, spine translucent.

This variety is described as of spreading habit, shorter than broad.

6. Branches loose, widely spreading, buds oblong, acute, with oblong acute coriaceous chestnut-brown scales. Bark of the young shoots reddish-purple, with raised cushions (pulvini), older shoots dull brown. Leaves spreading 25 to 30 millimetres long, 2 to 3 millimetres broad, falcate, linear-acute, shortly petiolate, deep green above, with a broad central midrib between two whitish bands on the



FIG. 45.—CYPRIPEDIUMS IN THE COLLECTION OF DREWETT O. DREWETT, ESQ.

(For text see page 100.)

of Val d'Aulnay, Chatenay (Seine), some excellent cut specimens from seedlings, showing a considerable amount of variation in the habit of the tree, the direction of the branches, the colour of the herbaceous shoots, the dense, or relatively loose, disposition of the leaves, their spreading or ascending direction, their size and degree of curvature, and other points. In certain respects some of these forms resemble the species of *Cephalotaxus*, but these are usually of a paler green, and have the midrib prominent in the form of a central ridge on the upper surface, whereas in all the specimens of *Torreya* the upper surface of the leaf is convex or without any central ridge.

We give some notes on the specimens submitted as under number:—

No. 1 is stated by Messrs. Croux to be of regular habit, twice as high as broad, with regular verticils of five or six branches. It commences to grow very late—in June. It is

central green midrib between two white bands beneath, somewhat convex above. This variety is noted as of slender, somewhat loose, habit, three times taller than broad. Foliage irregularly but strongly tinted with yellow.

3. Branches ascending, bark of the old shoots greyish-brown, that of the herbaceous shoots green, flushed with red. Bud ovoid, scales coriaceous, reddish-brown, oblong, acute. Leaves ascending 5 to 7 centimetres long 3 millimetres wide, linear, lanceolate, spine-tipped, slightly convex above. Messrs. Croux describe this as of irregular growth and cultivated by them under the name of *T. Myristica*.

4. Branches ascending, old shoots reddish-brown, with grey lines on either side of the pulvini, young shoots green. Bud ovoid, somewhat compressed, scales broadly ovoid, acute, coriaceous, pale brown. Leaves slightly ascending, linear, 50 to 60 millimetres long, deep green, slightly convex above.

lower surface. This variety, raised from seed like the others, has a distinctly weeping habit.

Four specimens of *Torreya* or *Tumion* have survived from the tertiary period when the genus inhabited the Arctic Circle, and then, spreading southwards, existed for a long time in Europe, whence it has now disappeared (Saporta, *Origine Paléontologique des arbres*, 59, cited in Sargent Silva, vol. 10, 1896). Of existing species one, the type of the genus, inhabits Florida, a second is widely scattered through the forests of Western California, one occurs on the mountains of Central and Southern Japan, and another in Northern China (*T. grandis*).

With these specimens of *Torreya* come branches of a *Pinus* called *P. Malleti*, which is evidently one of the many forms of *P. ponderosa* with very long leaves, and of the true *Abies lasiocarpa*, which is also known as *A. subalpina* and *A. bifolia*.

CYPRIPEDIUMS AT WILLOW WOOD, RIDING MILL-ON-TYNE.

THERE are few collections of Orchids that have existed for a longer period than that at Willow Wood, Riding Mill-on-Tyne, the residence of Mr. Drewett O. Drewett. In early days it was remarkable as a general collection and for the fine hybrids it contained, raised by Mr. Drewett. During later years it has been particularly enriched by *Cypripediums* of the winter-flowering section. As will be seen in our illustration (fig. 45), *C. insigne* is one of Mr. Drewett's chief favourites, and he has brought together one of the finest collections of this most variable species. All the best known kinds are included, as well as many others that are not found in general cultivation. One of the finest among these latter is *C. i.* "Aberdeen," a most beautiful variety, possessing refinement and high quality so often lacking in the large flowers of *C. insigne*. Considerable attention has been devoted to the inter-crossing of the best of the varieties, in the hope that some good varieties may be produced, and there are a great number of young hybrid plants, in various stages of growth. *C. i.* "Grand Monarque" is another beautiful variety that has flowered this season, and it is highly prized by its owner. The plants seen in fig. 45 were carrying more than 500 expanded flowers at the time the photograph was taken, and the whole of the plants displayed excellence of culture. Mr. J. Renwick, the gardener, is an able seconder to Mr. Drewett in his enthusiasm for *C. insigne* and other winter-flowering species and hybrids. *H. J. Chapman.*

KEW NOTES.

THE GREENHOUSE.

SEVERAL early flowering trees and shrubs are already conspicuous in this house (No. 4). The hybrid *Rhododendron præcox* is naturally early-flowering, the blossom often being spoilt by frosts out of doors, but the plants respond readily to a little forcing, and the rosy-purple flowers soon make their appearance. Several large bushes of the double white *Spiræa prunifolia* call for special mention, the long slender growths being well furnished with flowers. *Forsythia suspensa* (syn. *Fortunei*), with its graceful habit, and the more erect growing *F. intermedia* are particularly spring-like in appearance. Another plant with yellow flowers is *Jasminum primulinum*. This proves hardy in some parts of the country, but at Kew requires protection. Only sufficient heat is necessary to keep out frosts; too much heat causes the development of growths instead of flowers.

A few spring-flowering bulbs adorn the side stages. Conspicuous are the Tenby Daffodil (*Narcissus obvallaris*) and *N. Golden Spur*. *Crocus* "Sir Walter Scott" appears to be a good variety for early flowering, the striped flowers being robust and freely produced.

A useful addition to the winter-flowering *Eupatoriums* is *E. vernale*, having white flowers. The Kew Wallflower, *Cheiranthus kewensis* x, continues to flower throughout the winter in a cool house. Grown on for several years large specimens can be obtained; or rooted from cuttings in early summer useful plants in 5-inch pots may be had with eight or ten racemes of flowers. The two large standard plants of *Sparmannia africana*, for several years past a feature of this house in winter, are as full of flowers as ever.

The side stages in one wing of the house are devoted to hard-wooded plants. The slender growth and greyish-green foliage of *Grevillea Thelemanniana* have a pleasing appearance. The drooping red and yellow flowers might at first sight be compared in form to a giant spider. *Olearia ramulosa*, a small-leaved, much branched Australian species, has little, white Daisy-like flowers. A large specimen of

Eriostemon myoporoides, 5 feet in height, planted in one of the beds, is covered with buds, while several have already expanded. The white flowers are slightly tinged with pink. Several other smaller specimens of this species in pots and a good plant of *E. affine*, a species with narrower leaves and starry flowers, deserve attention. Some of the flowers on *Acacia platyptera* have faded, but those on several other species are commencing to make a show. These include *A. obliqua*, *A. Drummondii*, *A. verticillata*, and *A. armata*. Although *Erica mediterranea hybrida* is a hardy plant, it is a useful pot plant for the cool greenhouse, lasting for several months in flower during mid-winter.

ARAUCARIA IMBRICATA.

MATURE trees frequently velop fresh shoots on the trunk around the older or dying branches. These shoots rarely live for any length of time, and it seems that the healthier the original branch the longer these secondary branches become, but they rarely exceed 6 or 7 feet in length. I enclose a photograph of a tree at Pencarrow, Cornwall (see fig. 46), which has thrown out two growths from the bole near to the ground, and instead of growing horizontally, as is usual with these adventitious branches, they have grown erect, having, when seen at a little distance, the appearance of natural seedlings growing close to the parent tree.



FIG. 46.—*ARAUCARIA IMBRICATA*, WITH ERECT BRANCHES FROM THE BASE OF THE TRUNK.

The two central pillars of the house clothed with *Cestrum*s (*Habrothamnus*) only require to be seen to prove their value for furnishing unsightly pillars. The species used are *C. elegans* and *C. purpureum*. The former is much the showier plant, the red flowers being bright and very numerous.

Kew has, fortunately, not been visited quite so frequently as usual by fogs this winter, but a brief spell on January 18 and 19 was sufficient to ruin a number of plants and damage many others. *Moschosma riparium*, *Coleus thyrsoides*, and *Tecoma Smithii* suffered severely. Brown patches on the leaves of *Senecio Petasites* look as if they have been scorched, while many of the flower buds have turned brown and will never develop. *D. D.*

The taller growth is just over 12 feet high, and first appeared some 10 years ago. As to its cause, I can only suggest that at some time the tree sustained a blow from the lawn-mower. *A. C. Bartlett.*

THE ALPINE GARDEN.

RANUNCULUS RUTÆFOLIUS.

AMONG the Alpine plants which are not very generally in gardens is this pretty little species of *Ranunculus*, which one would expect was more difficult of cultivation than it really is, although it requires some attention in certain seasons if it is expected to thrive and flower. There is a curious contradiction between the descriptions given in some works regarding the

colour of the flowers of this plant. Thus Nicholson's *Dictionary of Gardening* describes the blooms as yellow, a colour I have not seen in the flowers of this plant. On referring to M. Correvon's excellent little work, *Flore colorée de Poche*, I find that the description there given is white, which is in accordance with my own experience. I should not call them pure white, but there is no doubt that they are a shade from white and not yellow. The centre of the flower is greenish. The inflorescences generally are solitary on a short and somewhat trailing stem, but occasionally two and even three blossoms are borne on the peduncle. The leaves are pinnate, with three-lobed multifid lobes, and from their appearance is derived the specific name of *rutæfolius*. The whole plant is generally from 3 to 6 inches high, more frequently the former than the latter height. It is a native of the high Alpine pastures, where it delights in plenty of moisture during the growing season, but is, of course, in a condition of entire rest in winter. It is impossible to secure these conditions in an ordinary garden, but they may, to some extent, be given, by planting in a thoroughly well-drained situation, and by giving occasional copious supplies of water during spring, summer, and early autumn, placing a few stones about the plants to retain some of the moisture. Under these conditions it may have full exposure to the sun. Although a native of the granite ranges in Dauphiny, Piedmont, Valais, the Grisons, Tyrol, and the Pyrenees, it seems not to dislike lime, and I have grown it on a rockery largely composed of limestone without any apparent harm resulting. It thrives best with me planted only some 6 inches above the ground level of the path and on a flat "pocket," where the rain reaches the roots freely. The soil contained peat with a considerable mixture of sand and grit. The difficulty with this *Ranunculus* is that it increases slowly. It is best propagated from seeds. I have lost it when endeavouring to obtain increase by root cuttings, although its roots from their appearance gave me the opinion that root-cuttings would strike readily. They did not, and the parent was lost in the process. I prefer spring planting in the case of *R. rutæfolius*, and it is desirable to apply an occasional top-dressing of loam, peat, or leaf-mould, and a little sand and grit. This is the more necessary, as the frequent waterings it requires soon expose the "neck" of the plant. This distinct little Crowfoot deserves to be more widely known. *S. Arnott, Sunnymead, Dumfries, Scotland.*

MUSA BASJOO (SYN. JAPONICA).

This hardy species of Banana was introduced by the firm of Jas. Veitch and Sons, Chelsea, who had the plant growing for several years in the open in their nursery at Coombe. It is a native of the island of Yesso, the most northerly of the larger islands of Japan, and has long been cultivated in that country for its valuable fibre, where it was found by Messrs. Veitch's collector, M. Maries. Our illustration (fig. 47) is from a photograph of a plant growing in the open at Trengwainton, Penzance, Cornwall, the seat of T. Robens Bolitho, Esq. The plant fruited freely in this favoured county, but the fruits require an exceptional summer to ripen in this country, even in the south of England, and plants in the Temperate House at Kew failed to ripen their fruits. It is, however, a handsome foliage plant, and a most valuable subject for sub-tropical bedding, the leaves being almost equal in luxuriance to those of *M. Ensete*. It is very necessary to select a well-sheltered site for such plants as *Musa*, high winds having an extremely disastrous effect on the large, tender leaves. Its propagation is readily effected by means of numerous suckers. The plant is figured in the *Bot. Mag.*, t. 7, 182, and a descriptive note appeared in our issue for December 22, 1900, p. 456.

PLANT NOTES.

RUELLIA PORTELLÆ.

If we except the ubiquitous *Chrysanthemum*, flowering plants are so scarce in December that it seems strange that such a bright winter-flowering plant as this Brazilian introduction should be so little grown. Its requirements are moderate, and its culture easy. Although classed as a stove plant it thrives equally well in an intermediate house where a maximum night temperature of from 50° to 56° Fahr. can be maintained. Cuttings root readily at all seasons; in common with almost all others they should be made with a sharp knife; non-compliance with this precaution is responsible for many failures. They should be short jointed, firmly inserted in small pots of sandy soil, and placed under a hand-light. When rooted they need not be potted off singly, but are best transferred bodily to 5 or 6 inch pots, using a light rich soil and pressing it



FIG. 47.—MUSA BASJOO (SYN. JAPONICA HORT.)
FLOWERING IN THE OPEN AIR.

firmly. During the summer months the shoots should be topped occasionally to induce a compact habit, but as autumn approaches the plants must be allowed to grow naturally or no flowers will be the result. The velvety leaves are so handsome that the plants will occupy a prominent place throughout the year. The rosy-pink flowers are freely produced at the ends of the growths and continue for a long time. Cuttings inserted in August will flower in quite small pots and are most useful for furnishing a jardinière or small vases. Spring struck cuttings will form plants 12 to 18 inches high. *A. C. B.*

CORYNOSTYLIS HYBANTHUS.

This pretty stove climber, which flowers at the dullest season of the year, is deserving of more general cultivation. It will grow well in a large pot, and better still when planted out, especially if given good soil and provided with

proper drainage. It can be trained up a wall or pillar, but, if space can be afforded, the best place is on the roof, where its flowers are more effective. It is very sensitive to drought, and especially so at the time of flowering, when, if it is allowed to become dry at its roots, the flower buds will drop before they expand. The flowers are produced on racemes, which arise from the axils of the leaves at the apex of the lateral branches. There are four or five racemes on each shoot, each raceme carrying from 12 to 15 flowers, which are snow-white, and with a curious twisted spur. They possess a delicious odour, which pervades the atmosphere of the house during the greater part of the day. The leaves, which are from 4 to 5 inches in length, are minutely serrated, and give further prominence to the white flowers. The plant flowers freely in the Palmhouse at the Royal Botanic Garden, Edinburgh, every year, and is much admired by visitors. It is a valuable subject for gardens, for winter-flowering plants are always acceptable. It is easily propagated by cuttings made of the young growths in the spring. They should be inserted in sandy soil around the side of a small pot. The plant belongs to the order Violaceæ, and is a native of tropical America. It was introduced into cultivation by Mr. Linden, and it is figured in the *Bot. Mag.*, t. 5960. *L. B. Stewart, Royal Botanic Garden, Edinburgh.*

CALLIPSYCHE MIRABILIS.

This ornamental and extremely curious Peruvian plant belongs to a genus comprising about three species of the Amaryllidææ. It requires a compost consisting of rich, fibrous loam and leaf-soil, with enough sand to make it thoroughly porous. Afford good drainage, and pot firmly. Copious supplies of water will be required during growth, but when the foliage has signs of decay, it should be gradually withheld, and during the winter months the soil should be kept moderately dry, to prevent the bulbs from excessive shrivelling. The species may be propagated easily by seeds, which should be sown in sandy soil, and the pots placed in a temperature of 70° at night, where they will soon germinate, and when large enough they should be pricked off into pans or pots, and be given a situation well up to the light. The flowers are small and greenish-yellow in colour, with stamens three times the length of the perianth, spreading out on all sides. Remove the plants to a greenhouse temperature when in bloom, for the flowers will be found to last longer there. *G. H. Banks, Botanic Garden, Cambridge.*

[A fine illustration was given in our volume for 1900, March 31.—ED.]

DAPHNE INDICA, VARIETIES RUBRA AND ALBA.

In some of the more favoured parts of the country these sweetly-scented *Daphnes* can be grown against a wall, if afforded slight protection in sharp weather. I have seen out-of-doors plants, covering many feet of wall space, flower annually with great profusion, the air for some distance being filled with the delightful perfume. Those who cannot grow them outside will find them easy to manage in pots, providing they are potted into a good, sandy compost, and the pots are well drained. Stagnant moisture is fatal to the small, fibrous roots, and plants under such conditions will gradually lose their foliage and die. Large specimens can be cultivated in 10-inch pots. All through the summer months the plants should be placed in full sunlight out-of-doors upon a hard base, where they may be syringed two and three times daily. In such a position they will make good growth, and as autumn advances, each point of growth will have set flower buds. Gentle forcing is not harmful to the plants, and a constant supply of flowers can be thus maintained throughout

the winter. Intermixed with other flowers for room decoration, or in making up bouquets, sprays, buttonholes, &c., the flowers add a charm by their sweet perfume.

Propagation is easily effected by cuttings, and also by grafting. Cuttings taken off in July or August should be placed singly in pots, or several together in a 48-size pot, using a very sandy compost. The cuttings must be placed in a cool house, covering the pots with a bell-glass, or kept close in a frame until the cuttings have callused is the best plan, afterwards removing them to a warmer house, still keeping the atmosphere close until the cuttings have rooted well. For the first season and until the plants become thoroughly established, an intermediate temperature is best, as by giving them a genial warmth the young plants establish themselves more quickly.

The "crown" method of grafting is more generally adopted than "side" grafting. *Daphne Laureola* or *Spurge Laurel* is generally used for the stock. This *Spurge Laurel*, which in itself is an attractive evergreen with highly-scented flowers, is frequently found growing wild in our woodlands in different parts of the country. Not long ago when walking along the high road bordering a wood in Buckinghamshire, I saw a large number of small plants growing about the size of a lead pencil, and just a suitable size for grafting. When grafting is contemplated, the stocks should be potted up early in the autumn so as to become established. The grafted stocks should be placed in a close frame with an atmospheric temperature of 55° to 60°, airing the frame for an hour each morning, at the same time wiping the condensed moisture off the glass. In about ten days or a fortnight, the union of stock and graft will be sufficiently called over to be removed from the frame. *W. H. Clarke, Aston Rowant, Oxon.*

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq.,
Eastwell Park, Kent.

The Palm-house.—Work in connection with the re-potting and top-dressing of Palms may soon be taken in hand. It is now fairly well known that most Palms will thrive and continue in a healthy state in much smaller pots or tubs than were at one time thought necessary. If Palms are healthy, and there is room in the pot or tub to apply plenty of water for the roots, there is no need to pot them into larger pots, always providing the plants, being gross feeders, are fed regularly with some good, artificial manure, and that the roots are never allowed to lack water. The above remarks apply principally to the stronger growing Palms as the *Kentias*, *Coryphas*, *Hyophorbe* (*Areca*), and *Phoenix*, most of which are much used for decorative purposes at the present time. Some of the more slender growing species like *Cocos Weddelliana*, and *Geonoma gracilis* require rather more careful treatment to keep them healthy. In the event of any of the latter being unhealthy and the soil sour, the roots should be washed out and re-potted in a pot of smaller size, being careful afterwards not to apply more water to the roots than is necessary, as they will be less active for a period. A lighter soil should be used for such Palms than is suitable for the stronger growing species. These latter succeed very well in loam with a little sand and soot added. When potting, ram the soil very firm, this being essential to keep them in small pots, otherwise they will soon lift themselves out of the pots. *Kentias* are probably the most useful of all Palms for decoration. *Cocos* and *Hyophorbes* (*Areca*s) are very graceful, but rather more tender; while for standing in draughty corridors, and putting up with general bad treatment, the hardier species of *Phoenix*, such as *P. tenuis* and *P. canariensis*, are useful for situations where better species would be sacrificed. Well-grown specimens of *Phoenix rupicola* and *P. Roebelinii* are very graceful for use upon tables, &c. Shading is a very important matter, and should be attended to early in the season, as dilatoriness in this matter may result in damage to valuable plants.

Bougardias.—These plants having been rested for a time in a cool house may now be cut back,

cleaned and placed in a moderately warm atmosphere. They will soon make plenty of young growths that may be used for cuttings. If preferred, the larger pieces of root may be taken off, cut up into small pieces, and placed in pans in the propagating frame. When they have commenced to grow, they may be potted up and grown on with the rest of the young stock, using a light, sandy soil with plenty of leaf-soil for the first potting, after which a rather stronger compost will be best.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq.,
Norwood, Allos, Clackmannanshire.

The vinery.—Muscat of Alexandria vines, which were started into growth last month, will now be swelling their buds, but their growth should not be hurried by excessive fire heat. The valves of the hot-water system should be turned on about 5 or 6 p.m., and be shut again about 8 a.m. in the morning, unless the weather is severe enough to necessitate a little artificial heat being applied during the daytime to maintain a temperature of from 55° to 60° Fahr. Maintain a humid atmosphere in the house by damping the borders and the paths twice daily, and if ventilation becomes necessary, through sun heat, close the house when the temperature has fallen to 80°. Do not allow excessive heat to radiate from the hot-water pipes at any time, for this is more harmful than allowing the temperature to drop a few degrees. Attend carefully to the watering of the borders, and use the tester to ascertain if they are dry, for the roots of Muscat vines will soon perish if the border is in the least degree overwatered. As soon as the buds burst into growth rub out all the weaker and leave only the strongest bud on each spur. In disbudding young canes, leave only the strongest and best situated buds on each side of the canes. These will form the future fruit spurs, and should be 15 inches apart alternately on either side. Vines intended for planting in prepared borders in March should be kept in a dormant condition. Small, well-ripened plants of last year's growth in 7-inch pots are to be preferred to gross ones. Turf for dressing the borders may now be prepared. To every 3 tons of chopped turf we add 1 cwt. of coarse grade vine manure, one half-ton of lime rubbish, and a liberal supply of wood ashes. The whole is mixed thoroughly and wheeled on to the borders when convenient.

Vines which are passing out of flower will require to have the atmospheric temperature of the vinery lowered to 65° at night and 75° to 80° by day. Keep the atmosphere moist by damping the borders and paths once or twice daily. If the bunches show the slightest tendency to run out too long, reduce the moisture in the atmosphere and admit a little air by means of the top ventilators, meanwhile keeping a good heat in the water pipes. This treatment will have the effect of producing compact bunches, which are always desirable. Remove any bunches that will not be required, and tie up the shoulders of those that are to remain with a thin strip of matting. Thinning may now be proceeded with. Run a small strip of matting through the centre of the bunch; take the two ends of this in the left hand, and thus hold the bunch in position while it is being thinned. Begin at the point and thin upwards. Remove all stoneless berries and all that would grow inwards towards the bunch. Regulate the bunch by thinning out the berries, few or many, according to the variety. After the thinning has been done, test the inside border with the soil tester. Examine the sample of soil very carefully, and if it is dry apply a good watering with tepid water. Guard particularly against over or under-watering at all times.

Vines in pots.—If the early supply of Grapes is produced by pot vines growing in pits, the atmospheric heat should be a few degrees higher than that recommended for the vinery. Let all water afforded these be applied to the roots in a tepid condition. Manure water may be applied once a week. Ventilate the pits with great care; damp the paths twice daily. The vine shoots should be pinched at two leaves beyond the bunch, and the sub-laterals at one leaf; afterwards rub out all growth. Remove any bunches that will not be required, and tie up the shoots neatly to the stakes.

Forced Strawberries.—Plants that are now coming into flower must be allowed a temperature of 60° at night and 70° to 75° during the daytime. During fine weather they should receive a little ventilation daily, but cold draughts must be avoided. Pollinate the flowers at mid-day with the camel-hair brush, and keep the atmosphere of the house, in which they are growing, dry. Give abundance of tepid warm water at their roots and a little manure water twice weekly. As soon as the fruits are set remove the pots to a shelf near to the glass. Thin out the weaker fruits, leaving eight or 10 Strawberries on each plant. Support the bunches of fruits with forked twigs, or better still with wire stakes that can be obtained from the sundriesman. Grow the plants in a moist atmosphere, but guard against excessive moisture, otherwise mildew will put in an appearance. The variety *Royal Sovereign* is especially subject to this disease. As soon as the berries commence to colour discontinue the manure water, and keep the atmosphere drier and warmer to promote a fine flavour in the fruits. A successional batch of plants should be brought into heat every fortnight; a vinery about to be started with a temperature of 45° to 60° Fahr. will suit them, but they must not be hurried into growth. *Vicomtesse Héricart de Thury* is a suitable variety for early culture in pots.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq.,
Cobham Park, Surrey.

Winter Onions.—As soon as the ground is in good condition for being worked, let the winter or August-sown Onions be planted out. A good dressing of dung and soot should previously have been applied to the soil. Before lifting the young plants from the seed-bed, the soil of the bed should be loosened with a fork, care being taken not to keep the plants out of the ground longer than is absolutely necessary. The plants should be put in at distances of 6 inches apart, in rows drawn at 1 foot from each other.

Garlic and Shallots.—Plant out the former at a depth of about 2 inches, but on heavy soils Shallots should be planted in shallow drills, drawn at 12 inches apart, allowing a space of 6 inches between each bulb.

Celeriac.—Seeds of *Celeriac* should now be sown in a box, which should be placed in an atmospheric temperature of 55° Fahr. Cultivate the young plants when they have appeared above the surface as strongly as possible without "coddling." Transplant them as soon as they are large enough, and gradually harden them off as growth and the season advance. If a cold frame can be spared for them at about the third week in March, finer plants will then be available in April, when it is time to finally shift them into the open.

Celery.—Where *Celery* is required early in the season, a small sowing should now be made, and the young plants will require similar treatment to that recommended for *Celeriac*.

Brussels Sprouts being generally in great demand and one of the principal winter-vegetable crops, should be grown in at least two batches, the first sowing to be made at the present time in light soil in a cold frame, or in a box, which should be placed in a cold greenhouse. This structure will afford sufficient protection, and induce hardiness, which must be the first consideration where vegetables are sown and cultivated in their early stages under artificial treatment.

Rhubarb.—If fresh plantations or beds are found to be necessary, a division of any old stools to hand should now be made, reducing them to single crowns, or if it is intended to give any of the more modern varieties a trial, these should be purchased immediately and planted 4 feet apart in rows, allowing a similar distance between the rows. Established beds that are to supply the season's demand for the kitchen or for the making of wine or jam, should now receive a dressing of dung, which should be well dug in, finally covering all the crowns with long litter as a protection, which will assist in obtaining an early supply of Rhubarb from the open garden.

Broad Beans.—Make a further sowing of these as soon as the ground is in a proper condition for the work, selecting *Long Pod* and *Green Windsor* varieties.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Aerides and Saccolabiums.—These beautiful Orchids are undeservedly neglected by most Orchid cultivators, but when well grown they are capable of producing very fine racemes of fragrant flowers. In collections which possess any of the following varieties—*Aerides Lobbii*, *A. Fieldingii*, *A. Houlettianum*, *A. odoratum*, *A. suavisimum*, *A. virens*, *A. Larpentæ*, *A. quinquevulnerum*, *A. Lawrenceæ*, and its yellow-tinted variety, *Sanderianum*, &c., also such *Saccolabiums* as *S. guttatum*, *S. giganteum*, *S. præmorsum*, *S. retusum*, *S. violaceum*, &c., it may be noticed that the points of the old roots, which have been closed during their period of rest, are now turning green; therefore, the present is a suitable time to thoroughly overhaul the plants. Each one should be well cleared of scale insects, which are generally found on the stem and low down in the axils of the leaves. Any plants needing more rooting space should be re-potted. Pots are the best receptacles for *Aerides*, but for *Saccolabiums* teak baskets that may be suspended from the roof are preferable. Rough, unchopped, but clean-picked sphagnum-moss is the best material for them to root into, inserting among the moss moderate-sized pieces of crocks to ensure porosity, and covering the surface with a conical mound of freshly-gathered sphagnum-moss. Plants that do not need re-potting should have the exhausted material carefully picked out from the roots, and fresh sphagnum-moss substituted. Following this treatment the plants should be placed in the warmest house, and be protected from all strong sunshine. One thorough watering will be sufficient to last for several weeks to come, but their immediate surroundings should be kept fairly moist by damping the stage between the pots two or three times each day. After such a period the surface moss will have become dry, and may then be occasionally sprinkled or sprayed over with tepid rain water. Any of the plants that have had their roots disturbed by re-potting, and which may in a short time produce flower-spikes, should have such spikes pinched out, which will assist the plant to make a fresh start. The cooler-growing *Aerides*, which comprise such varieties as *A. crispum*, *A. crassifolium*, *A. Lindleyanum*, and *A. Warnerii* thrive best in the *Cattleya* or intermediate house, where they require a well-ventilated position.

Cattleyas.—*C. Trianae* and *C. Percivalliana* should, as they pass out of flower, be kept rather drier at the root until growth recommences. *C. gigas* and *C. Warnerii* are now starting into growth, and will need to be watered. Both species should be placed well up to the roof of the *Cattleya* or Mexican house, and the more light they can get without strong, direct sunshine the more likely are they to bloom satisfactorily. These two species should not be disturbed until they have completed their growth, for they will then produce many new roots.

In the Mexican house, *Odontoglossum citrosomum* is commencing to grow, but the plants need no water until the growths are well advanced, or when the flower-spikes are seen pushing up through the centre; then the compost should be thoroughly watered, and the plants subjected to a moister atmosphere. When the spikes appear, wrap a piece of wadding around the growths to protect them from such insect pests as cockroaches, beetles, or woodlice; if these abound, spread some "Beetle-cute" around their haunts, and they will quickly disappear.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

The shrubbery.—All planting should be finished during this month, so as to allow time for the plants to form new roots before the drying winds set in. In all cases where it is necessary, afford a stake to the newly-planted shrub, in order to make it secure against wind, and affix an indelible label to new or rare varieties. At this season a mulching is even more essential than in the autumn. Examine the ties upon recently-planted shrubs to see that they are not likely to chafe the branches. Any needful pruning of those deciduous shrubs which flower on the current year's growth must be completed as

soon as possible. Those which flower on the previous season's wood must be pruned when they pass out of flower. The flowers of the invaluable Winter Sweet (*Chimonanthus fragrans*) will soon be past, but the less pruning this shrub receives the better it will flower. When growing against a wall I have found it best to cut away whole branches, as they become crowded, rather than to spur back the shoots. Persistently cut out all green shoots that appear in white and golden-variegated shrubs, or these reversions will grow strongly at the expense of the more decorative parts. Established shrubberies will require some soil-enrichment, and where it is possible, this should be lightly forked into the soil, as in doing this the soil becomes aerated, provides a better surface for the necessary hoeing later on, has a more cleanly appearance, and renders the manure more readily available to the roots. But when treating surface-rooting plants—more particularly *Rhododendrons* and *Ghent Azaleas*—this would lead to the destruction of many roots, and the manure must, therefore, be applied as a top-dressing.

Herbaceous borders.—As weather and opportunities permit, any necessary alterations or arrangements should be carried out. Many of the stronger-growing plants are probably occupying too much room and must be restricted. This is best done by taking up the whole clump and removing sufficient from the outside of the clump to replant. If they are to go back to the old position, the soil should be well broken up, and a suitable dressing incorporated with it. The spaces soon to be planted with *Pentstemons*, *Gaillardias*, summer-flowering *Chrysanthemums*, &c., should be well dug and heavily manured.

Lawns.—Continue to frequently sweep and lightly roll the grass. A light top-dressing of fine soil and wood ashes will quickly improve a poor sward, but it is necessary to exercise caution as to the source from which it is obtained, or a crop of weeds will take the place of the finer grasses. Turf-laying should only be proceeded with during fine weather; it is impossible to do the work properly between showers. Moss may be removed by scouring it with an iron rake. Where the rainfall is heavy, moss puts in an appearance towards the end of the autumn and dies away in the spring when drier conditions prevail. The periodical sweepings and rollings usually serve to keep the moss from becoming too much in evidence.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

New Strawberry-beds.—Where spring planting is contemplated, the preparation of the ground should be undertaken as soon as it is in a fit state to be worked. Trench the soil 2 feet deep or double-dig it, the latter term merely meaning the turning upside down of the second spit of soil. Place a layer of manure at the bottom of the second spit as well as between that spit and the top spit. Allow the ground to settle until the end of the present month, or early in March, when planting may be done. The distance to be allowed from plant to plant must depend upon the variety, but 2 feet asunder is a pretty general rule, although many set out the plants at 1 foot apart in the row, chopping out every alternate one at the end of the fruiting season 16 months hence.

American blight.—All cultivators of fruit are acquainted with this pest that attacks Apple trees more or less throughout the country, and this, the dormant season, affords an opportunity of battling with the enemy. Paraffin emulsion, spirits of turpentine, or methylated spirits applied with a fairly stiff brush, and thoroughly worked into every crevice of the bark, proves the most effective remedy. The soil or turf should be pulled aside, and the roots near the base of the trunk should be treated in like manner, as this proves a rare hiding place for the depredators. This practice should be persevered with throughout the summer, by the end of which few, if any, of the insects ought to be found. Do not touch the foliage with either of these spirits, or much injury may be done.

Grass orchards.—In the western counties it is general to stock these with sheep or pigs, but recently-planted trees must be well protected with wire netting, or the sheep will nibble the bark to such an extent that growth will become stunted; canker will set in, and eventu-

ally many a tree will have to be destroyed as worthless. Where this, or other effective protection is afforded, there is no better way of manuring the land, as grazing can continue right up to the time the fruit begins to fall, and where nettles abound pigs will unearth every root, and quickly rid the ground of this undesirable weed. In our case there is no stock to turn in, so we apply an annual top-dressing of waste soil, decayed leaves, grass, &c., and every few years a good percentage of fresh, slaked lime is added to the above compost, mixed together twice, and then distributed over the turf. We mow the grass twice in the summer, and the grass is used for mulching fruit-tree borders, especially those of the Apricot and Peach. Where drainings from the farmyard are plentiful, the liquid may well be utilised on orchard land at this time of year.

General remarks.—The thoughtful fruit-grower will have taken advantage of the firm state of the ground recently to get the necessary manure wheeled or carted on to the borders. Up to the time of writing, the small, mischievous birds that often cause injury to the fruit buds, have not commenced operations, but a keen look-out must be kept, especially during hard frost, which prevents their getting any food from the ground. During inclement weather examine netting of all kinds, any netting used for the protection of ripe fruit having got broken during the past year, and worth repair, should be put in order. One pound of small twine will go a long way in pulling rents together, and where hexagon netting is used as roller blinds in protecting wall fruit trees in spring, a small patch here and there of the same material will often make them serviceable for another season or two. Obtain the required supply of new netting, so that it will be available when needed for use.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Seats (continued).—There are many different kinds of garden seats, ranging from the ordinary cheap rustic seat to the large expensive kind with ornate cast-iron ends and supports. It must be admitted that for all practical purposes the less complicated a garden seat is, the better, and one having the seating and back made up of only six good-sized battens, is preferable to one consisting of 13 or 14 strips of wood—a very common type. It is also much better for the ends of seat battens to be free instead of being bolted in the grooves of cast-iron frame work. Seats of this latter pattern are constantly requiring repairs on account of the wood rotting in the grooves, and their upkeep is in consequence somewhat expensive. Seat battens are commonly made from pitch pine, although it is by no means the most suitable timber for withstanding the effects of our changeable climate. Teak and English Oak are the best for this purpose, and last very much longer than most other woods, but on account of their higher price are not generally used. Until recently, the iron work employed in the construction of seats was invariably cast, but in the better class of seats now coming into vogue, simple but strong wrought iron frames are used instead. Cast iron being so easily broken is not a suitable material for the framework of seats that have to be moved about from time to time, for if once damaged, it can hardly be repaired again. Wrought iron, on the contrary, can easily be welded together if by chance it gets broken.

Housing and painting of seats in winter.—It is convenient to have a large barn or shed, in which garden seats may be stored and painted during the winter months. When possible, seats should be stored several weeks prior to being painted, so as to ensure the woodwork becoming thoroughly dry before a brush is put upon it, and they should remain under cover for as long a period as possible after they have been painted, in order to allow the paint to get perfectly hard before being exposed to the weather. Many people like their garden seats oak-grained and varnished, but, for standing wear and tear, a couple of good coats of dark green paint, with a final coat of hard outside oak-varnish is hard to beat. Teak-wood, I understand, simply requires a dressing of linseed oil, with a coat of varnish to keep it in good condition.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the **PUBLISHER, 41, Wellington Street, Covent Garden, W.C.**

Letters for Publication, as well as specimens and plants for naming, should be addressed to the **EDITOR, 41, Wellington Street, Covent Garden, London.** Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, FEBRUARY 16—
German Gard. Soc. meet.

THURSDAY, FEBRUARY 21—
Linnean Soc. meet.
Manchester & North of England Orchid Soc. meet.

FRIDAY, FEBRUARY 22—Roy. Bot. Soc. meet.
British Gard. Assoc. meet at Kingston.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—**39° 6'.**

ACTUAL TEMPERATURES:—
LONDON.—*Wednesday, February 13 (6 P.M.):* Max. **42°;** Min. **37°.**

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 14 (10 A.M.): Bar., **29.8;** Temp., **41°;** Weather—Bright.

PROVINCES.—*Wednesday, February 13 (6 P.M.):* Max. **43°** Ireland S.W.; Min. **37°**, Scotland N.E.

SALES FOR THE ENSUING WEEK.

MONDAY— 8.12
Roses, Azaleas, Perennials, Lilies, and other Hardy Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY—
Clearance sale of Nursery Stock at Grove Park Nursery, Chiswick, by order of Mr. J. Smith, by Protheroe & Morris, at 12.

WEDNESDAY—
Hardy Bulbs and Plants, Azaleas, Palms, and Plants, at 12; Roses, Fruit Trees, &c., at 1.30 and 4, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Plants, Roses and Lilies, at Stevens' Rooms, King Street, Covent Garden, W.C.

FRIDAY—
Azaleas, Roses, Border Plants and Bulbs, at 12.
Imported and Established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

A Satisfactory Meeting.

Having so recently commented on the report of the Royal Horticultural Society for the past year, there is little left for us to say regarding the annual meeting. Sir Trevor Lawrence, in moving the adoption of the report, passed in review its principal features, and congratulated the Fellows, as well he might, on the flourishing condition in which it now is. Sir Trevor has indeed earned the congratulations of the Fellows, and must feel justifiable pride on seeing the old society not only rescued from its at one time desperate position, but now raised to a state of prosperity beyond what it has ever previously attained. With what different feelings must the President now address the Fellows to those he must have experienced in the bad old days. Sir Trevor was careful to assign credit where it was due, but the Fellows have shown that they are not unmindful of the services rendered by the President himself.

In the course of his remarks, Sir Trevor took occasion to comment on the great loss sustained by horticulture in general by the death of the learned and genial Comte de

Kerchove de Denterghem, whose incessant labours in the cause can in some degree be appreciated by those who have taken part in the Ghent Quinquennials. The death of Sir Michael Foster, who was a staunch friend to the society, was probably not mentioned from the fact that the President was alluding solely to the events of the year 1906.

The hall, which gave rise to dismal forebodings, has proved so attractive that the receipts obtained from letting it for various purposes when it is not required for the society's own use have sufficed to defray all, or nearly all, the very heavy outgoings for rates and taxes, and for ground rent. The Summer Show is, generally speaking, not a financial success, but last year at Holland House a small profit was made, and it is to be hoped that this year the balance may be equally favourable. This year, it may be added, occurs the tercentenary of Holland House. Amid the vast changes going on around us in London and elsewhere, this fact comes as a reminder that there is, nevertheless, a marked stability in British institutions.

When it came to the turn of Mr. Gurney Fowler to explain the items on the balance-sheet, we had one of those straightforward, lucid statements that he has taught us to expect from the treasurer. Not only is the society flourishing, but, like a prudent financier that he is, the treasurer is looking ahead, writing off certain sums for certain depreciations of buildings and appliances, including the glass roof of the hall, which it is supposed may require substantial repair within 40 years. As this will be an expensive business a sum of £120 a year is set apart to form a fund for the renewal of the roof when needed.

Nothing was said about the Lindley Library, but we trust that that may now be dealt with in a manner commensurate with its value and importance.

The usual well-earned compliments and thanks were accorded to the committees and the members of the staff, and as no one had any question to ask or criticism to offer, the meeting was brought to a highly satisfactory termination.

OUR SUPPLEMENTARY ILLUSTRATION shows the beautiful Water Lily that was exhibited by Lord HILLINGDON, under the name of *N. atropurpurea*, at the meeting of the Royal Horticultural Society, on July 31 last, when it received an Award of Merit from the Floral Committee. It belongs to the section of hybrids raised by M. Marliac. It is quite the deepest coloured, perfectly hardy Water Lily, and it has curled anthers, the orange-yellow colour of which is very effective. It is a flower of large size, being something like 9 inches in diameter, and the blooms are produced with the greatest freedom. Mr. A. R. ALLAN, the Gardener at Hillingdon Court, writes: "Nymphaea atropurpurea is a particularly showy variety, with large flowers, from 6 to 9 inches in diameter, and having yellow anthers. The petals are incurved, and of a very deep shade. It attracts much attention when planted between other paler varieties, as is done in these gardens. To my mind this is the most pleasing of all the Nymphaeas, being a good grower, and without excessive foliage. It is planted about 18 inches below the surface of our Lily pond, fully exposed all day to the sun. At the time the flower, from which the illustration was prepared, was cut, there were 30 fully expanded blossoms, and as many more buds ready to burst."

ROYAL METEOROLOGICAL SOCIETY.—An ordinary meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, February 20, at 7.30 p.m. The papers to be read will include:—1, "Report on the Phenological Observations for 1906," by EDWARD MAWLEY, F.R.Met.Soc., V.M.H.; 2, "The Metric System in Meteorology," by RICHARD INWARDS, F.R.A.S.

THE FUTURE OF GARDENERS.—We would call the attention of our readers to the excellent remarks of the president of the Scottish Horticultural Association on the progress of gardening and the means of promoting it. We are on this occasion only able to publish a portion of the address, but in our next issue we hope to be able to give the remainder. His account of the bothy system, we believe, is not by any means universally applicable nowadays, but there can be no doubt that whilst in some establishments means are taken to secure the reasonable comfort and welfare of the young gardeners, in others the disgraceful state of things portrayed by Mr. THOMSON still exists. One object of the British Gardeners' Association is to endeavour to remedy these defects. The president is a warm advocate of the necessity for suitable education. Concurrently with this improved education, general and technical, must come an augmented remuneration and an improved social position. True, very much depends upon the man himself. No association can make "character," but it can mould it and afford the opportunity for its development and ensure that "conduct" shall reap its appropriate reward. The president says the association has begun at the wrong end. It may be so, but for our part we do not think it will make much material difference at which end a beginning is made, so long as a fair start is accomplished. The first thing to be done is to secure unity of purpose and co-operation. That done, circumstances will soon show which is the best course to pursue in fulfilment of the aims.

NATIONAL POTATO SOCIETY.—The secretary informs us that the society's show this year has now been fixed to take place at the South Eastern Agricultural College, at Wye, in Kent, on Wednesday, October 2. Arrangements are being made for holding a series of Potato trials at the College gardens, under the direction of Mr. W. P. WRIGHT, the horticultural superintendent, in addition to the trials which will be continued at the Cambridge University Farm at Impington, Cambs., and elsewhere.

THE VEITCH MEMORIAL TRUST.—At a recent meeting of the Trustees a gold medal was unanimously awarded to Mr. WORTHINGTON G. SMITH in recognition of his invaluable services to horticulture as a botanical draughtsman. Mr. SMITH has been so long associated with this journal, both as a botanical artist and a student of fungi, that we feel no little gratification at this recognition of our friend's prolonged services. A similar medal was bestowed on Mr. J. G. BAKER, whose garden monographs are so highly valued. At the same meeting a most welcome addition to the funds of the Lindley Library Trustees, in the shape of a donation of £25, was made, and arrangements were made for the presentation of prizes at the special meeting of the York Gala to be held next year (1906).

SIR MICHAEL FOSTER.—The current number of *Garden Life* contains two portraits of the deceased physiologist, together with views of his garden and an interesting account of a chat with its owner about Irises. Speaking of the length of time required by the seeds of some Irises to germinate, Sir MICHAEL is reported to have said that he had repeatedly raised seedlings from seeds which had been lying in one pot for periods varying from five to ten years, in two instances for 13 and 15 years respectively, and in one case for 18 years. "There are still a dozen or more of



NYMPHAEA "ATRO-PURPUREA," A RICH PURPLE-COLOURED FLOWER, HAVING CURLED, ORANGE-COLOURED ANTHERS,
FROM THE GARDEN OF LORD HILLINGDON.

that 18-year-old seed sound and hard, and, I believe, still germinable. I am wondering whether it or I will come to an end first." Unfortunately there is no longer cause for speculation on this point.

BRITISH GARDENERS' ASSOCIATION RICHMOND (SURREY) BRANCH.—A public meeting of the Richmond and District Branch will be held in the Fife Hall, Kingston-on-Thames (close to Kingston Railway Station), on Friday, February 23, 1907, at 8 p.m. Chairman, Mr. ALEXANDER DEAN. An address will be given by Mr. R. HOOPER PEARSON.

LINNEAN SOCIETY.—There will be a meeting on Thursday, February 21, at 8 p.m., when the following papers will be read:—1, "The Percy Sladen Trust Expedition to the Indian Ocean," Mr. J. STANLEY GARDINER, M.A., F.L.S., &c. Introduction.—Part I. Ceylon to Mauritius; 2, Mr. R. C. PUNNETT, M.A., "Land Nemertean, with a Note on the Distribution of the Group"; 3, Mr. L. A. BORRADAILE, M.A., "Land Crustaceans"; 4, Mr. P. CAMERON, "Hymenoptera"; 5, Mr. F. F. LAIDLAW, M.A., "Dragon Flies"; 6, Prof. A. FOREL, "Fourmis des Seychelles, Admirantes, Farquhar et Chagos"; 7, Prof. G. H. CARPENTER, B.Sc., "Pycnogonida."

FLOWERS IN SEASON.—Mr. J. SMITH, V.M.H., of the Daisy Hill Nurseries, Newry, sends us male catkins and shoots of a variety of Alder, *Alnus incana aurea*, the bark of which is of a deep shining red, like that of some species of *Cornus*. The tree must be very effective in the winter season.

THE PREVENTION OF CORRUPTION ACT.—A correspondent writes to suggest that nurserymen and seedsmen, instead of reducing the price of seeds and plants to their customers, should give the amount they would have given to the gardener to the gardening charities, such as the Gardeners' Orphan Fund and the Gardeners' Benevolent. This suggestion would have to be carried out with the full knowledge and approval of the purchaser, else it would be open to most of the objections and penalties pertaining to the discount system.

NATIONAL FEDERATION OF FRUIT AND POTATO TRADERS' ASSOCIATIONS.—The annual dinner of the National Federation of Fruit and Potato Traders' Associations will take place at the Trocadero, on Tuesday, March 19 next, when Sir ALBERT K. ROLLIT, Kt., will preside.

THE SEEDLESS APPLE.—From Mr. NANSCAWEN we have received specimens of an Apple perfect except as to the seeds which are abortive. The ovules are formed, but they do not ripen into perfect seeds, and no embryo is formed in them. This points to the circumstance that the flower is either not properly pollinated or that the pollen is not in good condition. Mr. NANSCAWEN tells us the tree has been on the estate longer than anyone can remember. Unisexual flowers are not at all uncommon in the Rosaceæ. Perhaps if the pollen of some other Apple were dusted on to the stigmas the seeds would be perfected.

ECONOMIC BOTANY.—The Council of the University of Manchester proposes to establish a lectureship on this subject. "The lecturer," says *Nature*, "will give instruction to special classes, and will assist in arranging the collections of plants and plant-products possessed by the University, examine and report on plant-diseases, timbers, and other vegetable products, and conduct special researches in economic botany."

THE UNIVERSITY OF CHICAGO.—Mr. J. D. ROCKEFELLER has endowed the University with the sum of £540,000, besides £48,000 for current expenses. On the whole, Mr. ROCKEFELLER has contributed more than £4,000,000 to this University.

PROFESSOR DR. KLEBS, until now resident at Halle on the Saal, has been appointed to succeed the late PROFESSOR DR. PFITZER, as-director of the Botanical Institute and Garden of the Heidelberg University.

DR. OTTO KUNTZE died suddenly, on January 28, at San Remo, where he had been residing for several years. To many of the readers of the *Gardeners' Chronicle* the deceased will be known by his controversy with the botanical world as regards nomenclature. Dr. KUNTZE was a self-made man. He began life as an office clerk, when he wrote his first botanical book, a *Flora* of Leipzig and surroundings. Having at the age of 27 years made his fortune, he decided to take his degree. He subsequently travelled in South Africa, South America, &c., and collected an enormous number of plants. These he described in his *Revisio Generum Plantarum*. With this publication his controversy began, which he continued until a few days before his death, when he sent out a protest against the last botanical congress at Vienna. [One of, if not the very last of, his letters appeared in our last issue.] However aggressive he was in his publications as regards nomenclature, he was a pleasant, kind-hearted friend to many, and ever ready to help and to allow the use of his rich library and herbarium. *Alwin Berger, La Mortola*.

MUSA BASJOO.—The *Revue Horticole* announces the flowering of this species (also known as *M. japonica*) in the open air in M. DE VILMORIN'S garden at Verrières, near Paris. The plant is growing in a sheltered but sunny position, and is protected during the winter by a thick layer of dead leaves, whilst the stem, or what answers to the stem, is protected by straw and a hood of the same material of such a shape as to throw off the water if placed over the whole.

FLORA OF NEW SOUTH WALES.—"Botanists have long acknowledged that the vegetation of New South Wales is remarkable for its immense variety, and the dissimilarity of a large number of species from those of other countries. There are 3,374 species and 549 varieties (*i.e.*, 3,923 named forms) of plants, including phanerogams (flowering plants) and vascular cryptogams (Ferns, 122 species and 7 varieties), described and recorded as having been found in New South Wales. The number slowly increases every year. Moreover, this enumeration takes no cognisance of the very large number of mosses, lichens, sea-weeds, and fungi also occurring in the State. The first three groups are little utilised, but the fungi are of enormous practical importance, less, perhaps, because of their direct utilisation (and even that in the case of a few edible species, *e.g.*, the Mushrooms and the Jew's ear fungus, is considerable), but because of the power of the minute species, *e.g.*, moulds and rusts, to injure and even destroy crops and other cultivated plants. An adequate account of these four classes of plants can only be given by specialists. The genus *Eucalyptus* comprises the principal forest vegetation of the State. It includes 89 species and 25 varieties, and some are added every year. Those which have smooth trunks are known as gums, and this term is qualified by adjectives such as white, blue, and red. Others have rough bark, and are known as ironbark and stringybark. The Wattles (*Acacias*) are worthy of more extended notice than can here be afforded them. Some are only 3 or 4 inches high, while others are over 100 feet, but the majority are shrubs or small trees. There are 122 species and 28 varieties of them, and they are found all over the State. They are a delight to the horticulturists, and they are highly prized by the tanner, the timber merchant, and the grazier." *The Year Book of New South Wales*, p. 115.

DEATH OF THE SULTAN'S GARDENER.—ADAM SCHLERFF, garden-director to the SULTAN at Constantinople, died on January 12. The deceased was born at Frankfort on the Main in 1834, and entered the SULTAN'S service as foreman in 1857. He had the superintendence of sixteen of the Imperial gardens.

LORD HOWE'S ISLAND.—"The flora of the island is in great variety, forming in all directions; the most picturesque of shady forests; the prevalence, however, of Palms (of the genus *Kentia* of Blume) and of Banyans (*Ficus columnaris* of Moore) form perhaps its most remarkable feature. Single trees of the latter in many instances cover acres of ground, while the Palms, countless in number, run up to 50, 60, and 70 feet in height, all of which, added to the colour of the water and the mountain, islet, and cliff scenery, give to the little isolated spot an unmistakable charm. The climate is peculiarly equable. Frosts are unknown, while in summer the thermometer seldom rises above 80°. Rain is abundant and frequent." *The Year Book of New South Wales*, p. 57.

A BIG HAUL OF QUEEN WASPS.—Whilst engaged in removing the lath blinds for painting from several of the glasshouses at Wargrave Manor, a colony of queen wasps was discovered. They were collected in a glass jam bottle and found to number 265. Mr. D. TURNER, the gardener, exhibited them alive at the meeting of the Wargrave Gardeners' Association held on February 6, and received the thanks of his fellow-gardeners for his services in ridding the district of so many of these objectionable pests.

THE RAINFALL during the past month in Leonardslee Gardens, Sussex, amounted to 1.39 inches. Rain was recorded on eight days only. This is in strong contrast, writes Mr. W. A. COOK, to January, 1906, when rain fell in these gardens on 20 days to the amount of 5.51 inches.

SILVER MEDALS FOR COTTAGE GARDENERS.—The Royal Horticultural Society, in granting to the Surrey Education Committee annually two silver Knightian medals, to be given each year to the worker of the best cottage garden and best allotment in the county, does so because the Society, being now a considerable landowner in Surrey, it realises that it has duties as well as rights. The past year was the fourth in which these medals have been awarded, and so keen is the desire to secure one that great efforts are made from year to year by workers to bring their gardens up to a high condition of cultivation. No competitor can take a medal twice in less than six years. As a rule, the presentations are made subjects of great local interest, some influential person being invited to give the medals. All those whose gardens are judged by the county horticultural instructor on a numerical basis are eligible. Last year's medal for a cottage garden was recently presented to Mr. A. DENNIS, a platelayer, for a capital, steep, sloping garden at Shenley; and the one for allotment to Mr. W. THOMPSON, of New Malden. In each class there were several close competitors.

Publications Received.—*Jamaica Bulletin of Miscellaneous Information*. January. Contents: Three Trinidad Orchids, Waste Organic Substances as Manures, Bamboo Notes, &c.—From the United States Department of Agriculture. Bureau of Entomology, Bulletin No. 61. *Laws in Force Against Injurious Insects and Fowl Brood in the United States*. Compiled by L. O. Howard and A. F. Burgess.—Technical Series No. 14. *The Bacteria of the Apiary; with Special Reference to Bee Diseases*. By G. F. White.—Bureau of Plant Industry. Bulletin No. 102. Part I. *Summary of Recent Investigations of the Value of Cacti as Stock Food*, by David Griffiths and R. F. Hare.—Bureau of Entomology. Circulars: No. 77, *Harvest Mites or "Chiggers"*, by F. H. Chittenden; No. 78, *The Slender Seed-Corn Ground Beetle*, by

F. M. Webster; No. 79, *The Brood Diseases of Bees*, by E. F. Phillips; No. 80, *Melon Aphid*, by F. H. Chittenden; No. 82, *Pinhole Injury to Girdled Cypress in the South Atlantic and Gulf States*, by A. D. Hopkins.—*Bulletin of Miscellaneous Information*, Kew. Appendix V. 1906. This is the Index to Kew Bulletin, 1887–1906. We note with satisfaction the publication of this brought up to date.—*The Garden City* reminds us that this year the eighth annual meeting of the Association will be held.—*The Muscum Gazette and Journal of Field Study*. January. Conducted by Dr. Jonathan Hutchinson, E. W. Swanton, and many others. Full of interesting notes and brisk useful articles.—Ontario Department of Agriculture. Macdonald Institute, Ontario Agricultural College. Bulletin No. 152.—*Gardening for Schools*, by S. B. McCready. North Dakota Agricultural College. Government Agricultural Experiment Station for North Dakota. Bulletin No. 71.—*Flax Culture*, by H. L. Bolley.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

BLUE HYDRANGEAS.—I should be inclined to answer Mr. James Brown's query, p. 68, as to whether "the real cause of some Hydrangeas producing blue flowers has ever been satisfactorily cleared up" in the negative, and I venture to assume that, beyond its being due to what has been vaguely described as "something in the soil," the predisposing cause has never yet been ascertained. Many theories have been advanced to account for this change of colour, but every one of these is capable of disproof. Mr. Mayne and Mr. Bear, p. 93, attribute this blue colouring in the flowers to the presence of iron in the soil and to shade respectively; other writers attribute it to the influence of a peaty soil, but many instances may be cited where neither of these conditions are responsible for the blue colouring. Some years ago I was in Abbotsbury Castle gardens at a time when the Hydrangeas were in flower. As mentioned by Canon Ellacombe in his paper on "The great drought of 1896," these gardens are heavily impregnated with iron, yet, in spite of this, all of the numerous Hydrangea plants except two bore pink flowers. These two plants were growing in shade, and Mr. J. Benbow, the gardener, considered, as does Mr. Mayne, that the colouring was due to their being shaded. Against this factor, however, I may mention that the bluest Hydrangeas that I have ever seen were growing at the edge of a steep cliff overhanging the sea, in South Devon, where they never experience a moment's shade from dawn till sunset. A difference of a few feet will often bring about a change of colour. Of this two instances are known to me. In the one case Hydrangeas are growing on either side of a little streamlet, which runs about 8 feet below the level of the ground, and the plants on one side bear pink flowers, those on the other side, blue. In the other case enormous bushes line both sides of a carriage-drive, those on the right hand producing pink blossoms, those on the left hand, blue. In both cases it would be imagined that the soil on either side of the streamlet and drive would be similar, but there is evidently some constituent present on the one side which is lacking on the other. It is sometimes stated that by watering these plants with a liquid heavily impregnated with iron or alum, or by burying iron filings in the ground, blue flowers may be secured, but though a certain change of colour may be effected, the clear blue of naturally grown plants is absent. Even where soil is obtained from ground producing blue Hydrangeas the result is not necessarily satisfactory, for a plant grown by a friend in earth, taken from among the exceptionally blue-flowered plants already mentioned, bore pink and not blue blossoms. My experience is that blue Hydrangeas are to be found in all manner of soils, whether gravelly, peaty, loamy, slaty, or iron impregnated, and in sunny as well as in shady spots. It is said that near Angers, in France, a soil is found, rich in silica, organic matter and humus, that invariably turns Hydrangea flowers blue. *S. W. Fitzherbert*.

—These gardens contain some hundreds of Hydrangeas: indeed one might almost say that Heligan is a garden of Hydrangeas, and in November last they were a glorious sight.

Many are growing under the shade of large trees, others in the open, and the majority of their flowers are of a lovely shade of light blue. I believe that shade and a certain quality in the soil are necessary to produce this beautiful blue in the flowers. These gardens are situated quite close to the sea, and this may also have something to do with the colouring. I have seen blue flowers in Hydrangeas at Penrhyn Castle, North Wales, the seat of Lord Penrhyn, which is also close to the sea, and I noticed many of the plants were growing in the shade. *G. S. Jordan, Heligan Gardens, Cornwall*.

I have been much interested in the correspondence on this subject. We have some old plants which produce flowers as blue as one could wish, but if cuttings are rooted from these and grown to flower on a single stem with large inflorescences, every one of these young plants will produce pink flowers. After flowering I cut the old inflorescence off, and when they flower again the following year all the flowers are blue and remain so afterwards. Whether I report the plants or not it does not affect the colour. No special mineral or chemical is used in any way, and the plants are all fed and treated alike. We only shade while the plants are in flower. We do not grow Hydrangeas permanently out-of-doors, as they will not stand the winter here. *T. B. Archer, The Hazels Gardens, Prescot, Lancs*.

SOWING SMALL SEEDS.—The patience of a young gardener is often tried when he has to transplant seedlings of such plants as Lobelias, Begonias (tuberous and fibrous), Gloxinias, Streptocarpus, Nicotiana, etc., which have been sown in pans or boxes as thickly as hairs on a cat's back. All small seeds should be sown evenly and thinly, the result being strong healthy seedlings, which, after being pricked out, soon make good, strong plants. The same thing applies to the sowing of many sorts of vegetables, whether sown early in boxes and frames, or in the open ground. Much seed is wasted yearly through being sown too thickly. *W. H. Collett, Huntsham Court Gardens, Bampton, N. Devon*.

GAS TAR AS AN INSECTICIDE.—The vines in four vineries of which I had the care five years ago were covered with mealy bug. After pruning and removing the loose bark they were thoroughly washed twice with Gishurst compound, and afterwards painted with a mixture of nine parts clay, one of gas tar, one of soft soap, and half of sulphur. These ingredients were stirred in boiling water, and when the liquid was cold the rods were painted with it, but not the young wood and buds. I use this preparation each year, and have not been troubled with bug since. It is also an excellent remedy for scale or other insect pests. This year I intend to syringe a few fruit trees with this substance. With regard to the petroleum I feel sure Mr. Huntley does not mean neat petroleum, even when the sap is up, but it is one of the best insecticides for hard wooded plants when mixed with boiling soap and used carefully. A gardener I knew kept a small bottle of petroleum, and when the vines were in full leaf he placed a spot of the petroleum on every bug he could find. It killed the bug certainly, but when the vines were started the next spring it was found that they were nearly killed, too. *Cautious*.

—The following is a copy of a recipe from the *Gardeners' Year Book* for 1874:—"To destroy mealy bug, Mr. Speed, the able gardener to the Duke of Devonshire at Chatsworth, has furnished us with the following infallible remedy. Take a pint of gas tar and mix with it a pint of dry powdered clay. Form the whole into a paste by adding by degrees a gallon of warm soft water. If this is applied with a brush during winter it effectually destroys mealy bug and indeed all insects, while it does not injure the trees." This recipe is over 80 years old and yet we are still discussing the merits of gas tar as an insecticide. I do not think gas tar or any such crude mixture will give as much satisfaction as the very reliable preparations sent out by the horticultural sundriesmen. *A. Prince, Brockwell Park Gardens*.

—It may be of interest to many readers, to have the experience of one who has used gas tar in various forms on fruit trees generally. There can be little doubt but that it is a most effective insecticide, and, when used in moderation, is quite safe to apply to fruit trees. I do not know what *South-East Sussex* means by "diluted," but the form in which I have used it, with very satisfactory results on Plum and

other trees, more with the object of saving the buds than the killing of insects, has been as follows:—Place a quantity of newly-made tar in an old iron pan, about half fill it with tar, and the other half with soft water. Leave this undisturbed for 48 hours. One gallon of the water only (the tar must not be disturbed) should be mixed with four gallons of soft water; and if the trees are syringed with this mixture I do not think birds or insects will visit the trees for some time afterwards. In time, however, the unpleasant smell is lost, and it will then be necessary to make a second application. The tar may be covered with water several times, and must be stirred in order to allow the water to become impregnated with the gases. With regard to Mr. Wilkinson's treatment of vines with tar, I can thoroughly recommend it. I have used it for years past exactly as Mr. Wilkinson recommends. I have also used it mixed with a little clay for the destruction of American aphid, with the best of results. I have also used it on orchard trees to prevent hares and rabbits from eating the bark. On one occasion the man sent to do the work used it in a pure state. They were young trees, and I must confess that I felt anxious as to their condition for some time. However, they came through the ordeal safely, and no mischief whatever resulted to the trees. *T. A.*

BURBANK'S CRIMSON WINTER RHUBARB.—Amongst the advertisements in a former issue of the *Journal of the Royal Horticultural Society* will be found one, occupying two pages, descriptive of "Burbank's Crimson Winter Rhubarb." The advertiser, after stating that he has "secured an importation of the latest and most valuable vegetable novelty produced by 'the notorious Wizard of the West' and raised in California four years ago," proceeds to give a quotation from the June number of the *World's Work* in praise of his wares. To this I desire to add a postscript, which has a most important bearing upon the identity of the article in question. In the course of a letter published in a later issue of the same magazine Mr. Lloyd, a seedsman of Sydney, N.S.W., states; "In the June issue of your interesting magazine there is a chapter devoted to Mr. Burbank's creations. . . . and there is a statement in the opening paragraph to which I take exception. It is 'only recently the King ordered from him a new variety of Rhubarb. It was obtained by Mr. Burbank from the wild Australian Rhubarb. . . . Now I do not think Mr. Burbank could have stated that he obtained it from the wild Australian Rhubarb, because we do not know of any such, but what we do know is that we supplied Mr. Burbank with seed of a variety which I believe was originated by a grower in Australia, and is known as Topp's Crimson Winter Rhubarb, and is the variety referred to by your contributor. . . . I am under the impression that an English firm include it in their list and call it some special name of their own." I think the case an interesting one, throwing as it does such a strong light upon the origin of this particular "latest and most valuable vegetable novelty." *A. G.* [Is there a wild Australian Rhubarb? We think not, and we are not aware that Mr. Burbank has ever claimed this variety as his production.—*Ed.*]

SWEET PEAS (see p. 90).—Mr. Brotherston's experience of the remarkable growth obtained from Sweet Pea plants, when very thinly sown or planted, should encourage other growers to be less free with their seed. It is not until some one bolder than another has the courage to break away from stereotyped methods in sowing seeds, not only of Sweet Peas, but of edible ones also, that the real capacity of strong growers to "branch" and thus become unusually productive is discovered. Only a few days ago a gardener stated that last year he sowed three seeds to a clump instead of the customary 10 or 12, and was astounded at the almost marvellous growth, branching, and fine blooms that resulted. It is by such thin sowing and the consequent free branching growth that our leading vegetable growers obtain their superb samples of Edible Peas and Runner Beans. But in obtaining seed of any of these plants, it is wise to select only the finest for sowing, and even when sown in pots singly, as Mr. Brotherston advises for Sweet Peas, to put out only the strongest plants, and thus is secured at once the finest growth and flowers, and a specially robust strain. *A. D.*

RUBUS BIFLORUS.—This plant, with its long, whitish, wax-covered canes, has been a conspicuous object in these gardens during the winter in the midst of some Camellias and Ericas. This variety was, I believe, brought from the Himalayas, and is by many persons confused with *R. leucodermis*, a native of Oregon, U.S.A. *R. biflorus* has much the longer spines, and they are more widely separated than in *R. leucodermis*. The bark also is very much whiter, and the growths resemble those of a Blackberry, while *R. leucodermis* has more the appearance of a Raspberry cane. *R. phœnicolasius* has a rich red-coloured bark, and all three species are exceedingly ornamental in the garden at this season. The fruits of *R. biflorus* are very pretty in July. These plants grow freely in a moderately heavy soil, which, however, should have a mulching of cow manure applied during the growing season. *W. A. Cook.*

DAFFODIL "BLINDNESS."—I have more than once stated in the *Gardeners' Chronicle* that "blindness" in Daffodils is a misnomer, but there still exist persons who believe that the flowering spathe is capable of evaporating, or at least vanishing from the bulb, leaving no trace behind. I have also stated that a bulb may be so badly diseased as to be incapable of producing a single root-fibre, yet that same bulb would, provided it contained the traces of the inflorescence within it, produce a scape in the ordinary course. I enclose a bulb for your inspection, which is a poor example, and with no roots developed, yet not only has the flower been produced, but, as you will observe, it is of excellent size and finish, and, more extraordinary still, the leafage is without spot or blemish. From these data I conclude that this disease-stricken bulb contracted largely of the disease now responsible for the non-production of root-fibres after the rudimentary flower was formed in the early summer of 1906. It is curious and interesting to add that this diseased bulb has produced its flower, &c., much in advance of other bulbs of the same batch that are healthy and well rooted. *E. H. Jenkins, Hampton Hill.*

ASPIDISTRA PUNCTATA.—This species of *Aspidistra* has, I believe, become almost ousted from cultivation by its more robust allies, the green and variegated forms of *A. lurida*. Notwithstanding that it is not quite so vigorous in its habit as *A. lurida*, it is undoubtedly a plant, owing to the peculiar markings of its leaves, worthy of greater attention. Quite recently I came across three excellent specimens of this particular species growing in a window. The owners had the impression that they possessed quite a new form of *Aspidistra*. It may be readily characterised by its deep olive-green leaves which are punctuated with white spots. Like all the forms of *Aspidistra*, it succeeds admirably in a compost of good fibrous loam, leaf-soil, and sand. *F. G. Tutcher.*

APPLE MINCHULL CRAB.—In a district in which I was living some years ago, this variety had evidently at one time been thought much of, as part of an orchard had been planted with it, but subsequently these trees were "headed down" and grafted with Blenheim Pippin and Tom Putt. Although Minchull Crab itself is a good cropper and grower, it had not imparted these qualities to either of the varieties worked upon it, but on the contrary the grafted varieties grew so strongly that few fruits were ever formed, and the trees were ultimately grubbed up. *W. H. Clarke, Aston Rowant, Oxon.*

NEW INVENTION.

MESSRS. SKINNER, BOARD & CO., of Bristol, have introduced a boiler which is called the "DEPLECTA." They describe it as a multitubular saddle boiler cased with a series of chambers in such a manner as to baffle and deflect the flame and heat in passing over the tubes of the boiler. It has the advantages of a tubular boiler without what has hitherto been its great disadvantage, i.e., masonry setting, so that any part can be instantly exposed by detaching the chambers covering the defective part. The series of chambers are rendered smoke-tight by means of faced edges, and to attach these to boiler (which is sent out complete) is a matter occupying but a few minutes. The "DEPLECTA" boiler is practically enveloped by the flame and heat-generated, thus rendering non-conducting covering unnecessary to obtain full power; neither does the temperature of the chambers necessitate covering owing to the baffling of the flame by the tubes of boiler. Great economy in fuel and other advantages are claimed by the patentees.

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 13.—As is customary every year on the occasion of the annual meeting of this society, a large display of exhibits was made at the meeting held on Tuesday last, and there were numerous Fellows present on the various committees and amongst the visitors.

Orchids were shown well from numerous collections, and the ORCHID COMMITTEE recommended Awards, including one First-Class Certificate and two Awards of Merit.

The FLORAL COMMITTEE recommended Awards of Merit to *Kalanchoe Dyeri* and *Nephrolepis Whitmani*.

The chief exhibit before the FRUIT & VEGETABLE COMMITTEE was that of a magnificent group of Orange trees and gathered fruits of varieties of the Orange, and also species of Citrus shown by Messrs. RIVERS.

The annual general meeting of Fellows was held at 3 o'clock in the afternoon. Everything being satisfactory, there was no discussion, and the proceedings lasted for little more than half an hour.

Floral Committee.

Present: W. Marshall, Esq. (chairman), and Messrs. John Green, T. W. Turner, C. R. Fielder, W. Bain, Chas. E. Shea, W. Cuthbertson, W. P. Thompson, E. H. Jenkins, W. J. James, H. B. May, Jas. Walker, Chas. E. Pearson, C. Blick, J. T. Bennett Poë, J. Douglas, S. Reuthe, H. J. Cuthbush, Geo. Gordon, Chas. Dixon, Ed. Mawley, Geo. Paul, J. F. McLeod, W. Howe, J. Jennings, N. F. Barnes, and R. Hooper Pearson.

Messrs. SUTTON & SONS, Reading, filled a very long table with named varieties of the florists' Primula, prominent among them being the peerless Duchess and derivative hybrids; His Majesty, with large, double, white flowers; Royal White, and many others, including seedlings in white, blue, crimson, pink, and other shades. The plants were exceptionally well grown, being compact and with bright, healthy foliage. The same firm displayed on an adjacent table a selection of Cyclamen in named varieties. We may mention, as being especially free flowering, the varieties Giant Pink and White Butterfly. (Silver-Gilt Flora Medal.)

Another excellent display of *Primula sinensis*, totalling nearly 200 plants, was shown by Messrs. H. CANNELL & SONS, Swanley, Kent. The plants were exceptionally robust, and were carrying very large "pips," some being 2 inches in diameter. One of the best varieties in this collection was Mrs. C. F. Raphael, with large inflorescence of rosy-pink coloured flowers of the largest type. There was also the fine white Queen Alexandra, Herbert Bennett (light blue), Mrs. Gregory (a free-flowering, double-pink variety, very useful for cut purposes), Sir F. Fuller (salmon-pink), and many others. (Silver-Gilt Banksian Medal.)

Messrs. JAMES VEITCH & SONS, Ltd., King's Road, Chelsea, exhibited a very pretty assortment of winter-flowering Carnations; miscellaneous greenhouse flowering subjects, including *Kalanchoe Dyeri*, *Primula kewensis* X, *Astilbe* (*Spiræa*) japonica, remarkably well-flowered; sturdy little plants of white and pink varieties of Azaleas, with a profusion of flowers, *Chieranthus kewensis* X, &c., and, as a separate exhibit, some interesting early-flowering shrubs, among which we noticed the large-flowered *Jasminum primulinum*, *Loropetalum chinense*, *Corylopsis paucifolia*, a very pretty Forsythia, *F. intermedia*, *Andromeda floribunda*, *Wistaria*, *Staphylea*, &c. (Silver-Gilt Banksian Medal.)

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, staged a number of well-flowered Azaleas, a selected strain of *Primula obconica*, and many choice Ferns, including many handsome crested *Nephrolepis*, such as *N. Todeaoides*, a variety unsurpassed for its beauty; *N. Whitmani* (new), *N. elegantissima*, *N. Pieroni*, and plants of the less pinnatifid type, of which *N. exaltata* and *N. Fosteri* are the best examples. (Silver Banksian Medal.)

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, staged a very large number of forced flowering shrubs, including Magnolias, Azaleas, Lilac, Wistarias, ornamental species of *Pyrus* and *Prunus*, *Daphnes*, *Spiræa* Thun-

bergi, &c., with a setting of Ferns as a groundwork and an edging of Ericas. (Silver-Gilt Flora Medal.)

The largest group in the Hall was a collection of Magnolias, staged by Messrs. WM. CUTBUSH & SONS, Highgate, London, N. A very fine specimen, pyramid trained, of *M. Halleana* occupied the centre of the exhibit, and there were also tall trees of this variety at either end of the exhibit. Some very well-grown espalier plants of this and other species were prominent, and would be suitable for wall training. The species included the dark red Lenné, speciosa (conspicua), Soulangeana, amabilis and Alexandrina, alba superba, &c. Arranged in a setting of Ferns and small Palms, and relieved with taller Palms at the back, the group was one of much merit. The same firm also displayed seasonable Alpine flowers, and a very pretty collection of Crocuses. (Silver-Gilt Flora Medal.)

Messrs. WM. PAUL & SON, Waltham Cross, Herts, filled the corner adjacent to the east annex with a group of Camellias, having large plants of the old alba plena—still one of the best white kinds; *Reine des fleurs* (red), imbricata, &c., at the back, and smaller plants of these and other varieties, such as Corallina, Beauty of Waltham, Tricolor, a single variety with striped petals, Princess Charlotte, &c., in the foreground. (Silver Medal.)

Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, showed hardy foliage and flowering shrubs, prominent among them being the new *Buddleia asiatica*.

Lady TAIT, Park Hill, Streatham (gr. Mr. W. Howe), made a bright display with forced bulbous plants—Tulips, Daffodils, Hyacinths, and Lachenalias. There was a remarkable freshness about this exhibit, and evidence of skill in forcing. The group received the high award of a Silver-Gilt Banksian Medal.

Messrs. J. HILL & SON, Barrowfield Nurseries, Edmonton, had Ferns in variety, a good selection of beautiful kinds, all admirably grown. We have space only to mention a few of the choicer examples, such as *Gleichenia flabellata*, *Polypodium Schneideri*, *P. irioides*, *Davallia novae zealandiae*, *Polypodium quercifolium* (a magnificent specimen), *Gymnogramme schizophylla gloriosa*, &c. (Silver-Gilt Banksian Medal.)

The best plants of Cyclamen seen in the Hall this season were shown by Mr. W. SEWARD, The Beeches, Hanwell, W. The foliage was almost hidden by a wealth of flowers, and the group, viewed from either end, was a carpet of colour. Each plant was a specimen of the best culture, and the strain is one of exceptional merit. (Silver-Gilt Banksian Medal.)

LORD ALDENHAM, Elstree House, Elstree (gr. Mr. Edwin Beckett), displayed a group of Cyclamen, for which he was awarded a Silver Flora Medal.

C. F. RAPHAEL, Esq., Porters Park, Shenley (gr. Mr. A. Grubb), displayed a group of large plants of *Souvenir de la Malmaison* Carnations of the deep-coloured variety Princess of Wales. The blooms were large and the colour well developed. (Silver Flora Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield, showed some pretty vases of Carnations, and a mixed collection of indoor flowering plants, among which we noticed many species of *Acacia*, *Euphorbia pulcherrima*, *Daphnes*, the new *Nephrolepis Whitmani*, and a batch of plants of *Dracæna Doucetti*, a very ornamental plant, with narrow leaves that are striated and edged with gold. (Bronze Flora Medal.)

Messrs. FELTON & SONS, Florists, Hanover Square, London, showed vases of Carnations, including the beautiful scarlet variety Britannia, one of the best and brightest of this popular flower.

Mr. W. PALMER, Nurseryman, Andover, showed plants of Chinese Primulas, labelled the Andover strain. Some small plants in 60-pots had been specially grown for table decoration. At one end of the group was a batch of Primulas of the stellata type, with blush-white flowers; it was named Queen Alexandra.

Some heavily-flowered plants of *Freesia refracta* were exhibited by Mrs. B. GREGORY, Shoreham, near Sevenoaks (gr. Mr. Lawrence).

Miss DODGE, Loseley Park, Guildford (gr. Mr. R. Stanard), showed a panicle of fruits of *Chamærops Fortunei*.

Mr. A. F. DUTTON, Iver, Bucks, displayed an improved form of the white Mrs. T. W. Lawson Carnation.

Sweet Peas and Carnations formed the subjects of an exhibit staged by Mr. C. ENGELMANN, Horneybrook Nurseries, Saffron Walden, Essex.

Mr. G. REUTHE, Keston, Kent, showed several interesting Alpine plants, dwarf Conifers, *Berberis nepalensis*, a great improvement on *B. Mahonia*, to which type it is allied; *Garrya elliptica*, *Daphnes*, &c. (Bronze Flora Medal.)

Sir EDMUND LODER, Bart., Leonardslee, Hortham, Sussex (gr. Mr. W. A. Cook), showed uncommon flowers and shrubs from his interesting garden. A basket of *Sarracenia purpurea* was conspicuous; we also noticed *Grevillea rosmarinifolia*, *Chimonanthus fragrans*, rare species of Hollies, &c. (Silver Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, W.C., displayed Narcissi, and several pretty Alpines. Forced plants of Solomon's Seal—*Polygonatum multiflorum* were interesting; we also noticed the new *Freezia Chapmanii* x.

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, had pots of forced bulbs grown in moss fibre, with no drainage provided to the receptacles. The plants had flowered well in this material.

Collections of Alpine and hardy plants were shown by Messrs. THOS. S. WARE, LTD., Feltham, who had also Carnations and Primulas. (Bronze Flora Medal); Messrs. JOHN PEED & SONS, West Norwood, including hardy succulent plants, *Primula obconica*, &c.; and the Misses HOPKINS, Barming, near Maidstone, Kent.

AWARDS OF MERIT.

Nephrolepis exaltata var. *Whitmani*.—This variety may be described as between *N. elegantissima*, which was shown last year at the Holland Park exhibition, and *N. Todeaoides*, which was illustrated in the supplement to our issue for December 29 last. When fully developed, the fronds are fairly erect, rather spreading, and much less plumose than *N. Todeaoides*, the pinnales being shorter and less acute. It should make a good decorative plant. Shown by Mr. H. B. MAY and Messrs. H. Low & Co. (Award of Merit.)

Kalanchoe Dyeri.—This species from British Central Africa was first described in the *Gardeners' Chronicle* for June 4, 1904, p. 334, and the flowers formed the subject of our supplementary illustration to the issue for May 12, 1906. The flowers are white, and the corolla tube about 1½ inch in length. The spread of the segments measures about the same diameter. The plants grow 2½ feet high, or even higher, and the leaves are 6 inches or more long and 5 inches broad. Shown by Messrs. JAS. VEITCH & SONS, Ltd.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, de B. Crawshay, W. Bolton, W. Boxall, A. A. McBean, Francis Wellesley, F. M. Ogilvie, F. J. Hanbury, A. A. Peeters, W. H. White, W. H. Young, H. G. Alexander, H. A. Tracy, W. A. Bilney, A. Dye, G. F. Moore, R. G. Thwaites, E. Ashworth, J. Charlesworth, and C. J. Lucas.

There was a fine show of Orchids; several very nice groups were arranged and no fewer than forty-five novelties entered to go before the committee, but only one First Class Certificate and two Awards of Merit were voted.

J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. Whitelegge), was awarded a Silver-Gilt Flora Medal for a very fine group in which the *Lycastes*, *Odontoglossums*, and white forms of *Cattleya Trianae* were excellent. Of the last-named, *C. Trianae* Emerald and *C. T. Pandora* had fine white flowers with a pale pink tint on the lip. Of the coloured forms, *C. T. Lord Chancellor* was a fine flower of the *C. T. Backhousiana* class. *Odontoglossums* noted were *O. Othello*, of good colour, *O. amabile punctatissimum*, finely spotted with purple; *O. Lambeauianum*, and other hybrids. The best of the varieties of *Lycaste Skinneri* were the varieties *Enchantress*, *alba*, and *Vulcan*; and of hybrids there were a good rosy-red *L. Balliae*, and the fine *L. Imshootiana* variety *amabilis*.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, secured a Silver-Gilt Flora Medal for a very handsome group of principally showy hybrids. The more important things were

arranged in batches of a dozen or so, and the effect was excellent. At one end was a batch of the dark orange-red *Laelio-Cattleya Charlesworthii*, around which were *Brasso-Cattleya Thorntonii*, and a plant of the new *Odontonia Ellwoodii* (*O. cirrosum* x *Miltozia Roezlii*), with a singular, narrow-petalled white flower with a few purple spots on the lip. Next were a clump of fine varieties of *Odontoglossum Rolfeae*; then an arrangement of the handsome *Cattleya Octave Doin*; then a fine set of *Odontoglossum crispum*, including some spotted forms. Beyond were some finely-coloured *Laelio-Cattleya luminosa*, and a further batch of hybrid *Odontoglossums*, and the showy *Cattleya Enid*. Others noted were *Odontodia Bohnhoffiae* and *O. heatonensis*, good *Laelia albida*, and *Miltozia Warscewiczii*.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a neat group of rare and well-grown Orchids, among which were three varieties of their pretty hybrid *Cypripedium Little Gem* (*Harrisianum superbum* x *Baron Schröder*) of fine form and good colour, one of the varieties having the lower sepals enlarged, divided and coloured like the dorsal sepal; *C. Tityus superbum* of the dark rich colour of the best *C. triumphans*; a remarkably good *C.*



[Photo by W. P. Bound.]

FIG. 48.—*CÆLOGYNE* x *COLMANII*.
Flowers white, with reddish-orange crest on lip.

Milo, *C. vexillarium* and other *Cypripediums*, *Cattleya Trianae*, &c.

H. S. GOODSON, Esq., Fair Lawn, Putney (gr. Mr. G. E. Day), received a Silver Flora Medal for a good group of *Cypripedium*, *Cattleyas*, *Odontoglossums*, &c., the best of which were *Odontoglossum Othello* var. *Geo. E. Day*, a finely formed yellow flower almost covered with dark chestnut-red blotches; a very handsome dark form of *O. Wilckeanum Goodsoni*; the beautiful *O. loochristiense* *Tracyanum*, which had already gained an Award of Merit; and some excellent hybrid *Cypripediums*.

Messrs. SANDER & SONS, St. Albans, secured a Silver Flora Medal for an effective group, in which were good forms of *Cattleya Trianae*, the variety *exquisita* being white with a slight tinge of lavender colour; a good selection of hybrid *Odontoglossums*, one of the most noteworthy being *O. Wattianum princeps*, a remarkable advance on previous forms in size and colour; *O. Harryano-crispum macrochilum*, with a large shield-shaped labellum; *O. loochristiense nobilium*, a charmingly-blotched flower; some fine *O. Wilckeanum*, and other hybrids. The *Cypripediums*, which were numerous, included several new forms. Others noted were a good *Laelio-Cattleya* *Henry Greenwood*, some finely-coloured *L.-C. Blotchleyensis*, *Brasso-Cattleya Thorntonii*, &c.

Messrs. JAS. CYPHER & SON, Cheltenham, received a Silver Flora Medal for a fine group of *Cypripediums*, varieties of *Laelia anceps*, *Odontoglossums*, &c., among which of special merit were *Cypripedium aureum virginalis*, and other varieties of *C. aureum*; *C. vill-exul*, *C. Mastersio-exul*, *C. "Transvaal"*, *C. tonso-villosum*, *C. Lathamianum giganteum*, &c.; the group also contained the large and singular *Masdevallia gargantua*, nice plants of *M. Hincksiana*, some pretty *Dendrobiums*, scarlet *Sophranitis*, &c.

Messrs. HUGH LOW & Co. staged a group which included good *Cypripedium aureum* *Surprise*, *C. a. Œdippe*, *C. Mrs. Wm. Mostyn*, *C. Euryades enfieldensis*, a large and finely-spotted form; *C. Memoria Jerninghamiae*, a very beautiful hybrid of fine shape; a selection of *Dendrobiums*, *Odontoglossums*, *Cattleyas*, &c. (Silver Banksian Medal.)

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, staged a good selection of hybrid *Cypripediums*, of which specially good were *C. Minos Youngii*, *C. nitens Queen of Yellows*, *C. Juno Orchidhurst* variety, *C. aureum virginalis*, and a very dark form of *C. Fairrieum*. (Silver Banksian Medal.)

Mr. F. G. YOUNG, St. Albans, staged an interesting collection of hybrid *Cypripediums*, several of which were exceptionally pretty. (Silver Banksian Medal.)

R. I. MEASURES, Esq., Camberwell (gr. Mr. Smith), staged a group which included the greenish *Cypripedium venustum Measuresianum*, the fine *C. Leander Cambridge Lodge* variety, *C. Woottonii*, *C. Bryan*, &c.

Messrs. J. & A. McBEAN, Cooksbridge, were awarded a Silver Banksian Medal and a Cultural Commendation for a pretty little group of the dark scarlet *Epiphronitis Veitchii*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), again showed the noble *Cypripedium Aeson giganteum*, the fine *C. Tracyanum*, with a large amount of pure white in the dorsal sepal, and which has already been given an Award of Merit; a fine plant of *C. Ville de Paris* var. *magnifica*, with four massive yellow flowers finely spotted on the dorsal sepal, which has the marginal and upper third pure white; *C. aureo-Spicerianum* and the pretty white-petalled *Cattleya chochoensis* Mrs. Francis Wellesley, which has a yellow disc to the lip and light rose markings.

Messrs. LINDEN, Brussels, showed *Odontoglossum crispum Gloire de Moortbeek* and *O. c. Bijou de Moortbeek*, two very fine blotched, home-raised forms; *Odontoglossum auriferum* (*Halls-canum* x *crispum*); and *O. crispum Prince Carneval*, a good blotched, imported form.

M. A. A. PEETERS, Brussels, showed two fine forms of his beautiful *Odontoglossum Lambeauianum* (for the variety *Idol*, see Awards), and *Cypripedium Leeaunum Laekenense*, a large yellow and white, sparsely-spotted form.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), sent *Cymbidium grandiflorum* and *C. eburneum*, the parents of his good form of *C. Hoffordianum*, three nice plants of which were also shown.

M. MERTENS, Mont St. Amand, Ghent, showed several hybrid *Odontoglossums* and *Cypripediums*.

Messrs. J. W. MOORE, Ltd., Rawdon, Leeds, showed a selection in which were *Cypripedium* *Miss Louisa Fowler*, the fine *C. aureum virginalis magnificum*, varieties of *C. Aëtus*, *C. Bassano*, and a pretty, nearly-white form of *C. Mendelii*, with dark rose front to the lip.

Messrs. HEATH & SON, Cheltenham, showed a selection of *Cypripediums*, &c.

H. J. BROMILOW, Esq., Rann Lea, Rainhill, Lancashire (gr. Mr. J. Morgan), showed *Cypripedium Fulshawense Bromilow's* var., a large and well-formed flower.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed *Laelia anceps "Hollidayana Theodora"*, a very fine, broad-petalled, white form, with violet lines on the side lobes of the lip, and yellow crest; and a good white *Odontoglossum crispum*, which was the first true *crispum* to be raised; also *O. Hunnewellianum* x *O. crispum* "*Raymond Crawshay*," to prove that even the most promising crosses may not always answer expectation, for this proves to be an indifferent *O. Adrianæ*.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford, sent *Odontoglossum "Othello"* Fowler's variety, a large, cream-white flower, with

cinnamon-brown blotches, and with purple spotting on the base of the white lip; also *Odontoglossum Lobbi* (amabile x *Pescatorei*), a pretty hybrid near to *O. Lambeauianum*.

Dr. HODGKINSON, The Grange, Wilmslow, sent the dark-coloured *Cypripedium insigne* McNabianum in good form.

Mr. JOHN ROBSON, Altrincham, showed *Cypripedium aureum* "Pomona" and three other hybrids, also a good blotched *Odontoglossum crispum*.

F. MENTEITH OGILVIE, Esq., Oxford (gr. Mr. Balmforth), showed a strong specimen of *Cypripedium aureum* Hyeatum.

G. JESSOP, Esq., Rawdon, sent *Cypripedium Fairrianum* "Lucifer," a very good dark form.

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr. Mr. Howard), sent *Odontoglossum crispum* Miss Little, a very nice white variety.

AWARDS.

FIRST-CLASS CERTIFICATE.

Odontoglossum Lambeauianum "Idol," from M. A. A. PEETERS, Brussels.—A noble extension of this fine hybrid, two forms of which have already been illustrated in the *Gardeners' Chronicle*. The large, broad-petalled flower was of a rose-coloured ground, heavily blotched with claret. Lip white, with violet blotches at the base.

AWARD OF MERIT.

Odontoglossum venustum "Apollo," from J. BRADSHAW, Esq., Southgate (gr. Mr. Whitelegge).—A very attractive hybrid, with cream-white flowers blotched with purple.

Calogyne Colmanii (speciosa major x *cristata* alba), from JEREMIAH COLMAN, Esq. (gr. Mr. W. P. Bound).—A very interesting cross and quite intermediate between the parents. Flowers several on a raceme, large, white, with reddish-orange crest on the lip. (See fig. 48, p. 108.)

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (chairman), and Messrs. Jos. Cheal, Chas. O. Walker, W. Bates, Geo. Woodward, A. Dean, Ed. Beckett, Jas. Gibson, Geo. Kelf, H. Parr, A. R. Allan, H. J. Wright, R. Lye, H. Markham, W. Fyfe, W. Pope, G. Reynolds, J. Davis, C. G. A. Nix, J. McIndoe, Jno. Lyne, O. Thomas, W. H. Divers, W. Poupart, and A. H. Pearson.

Messrs. J. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a new Pear named "John Seden," raised from a cross between the varieties Bergamotte Esperen and Winter Nelis. The sample had been so conscientiously tested by the committee that we were unable to see a whole fruit afterwards, but we believe that in appearance the seedling somewhat resembles Bergamotte Esperen, and has slightly better flavour.

A fine sample of Chicory came from Miss M. H. DODGE, Loseley Park, Guildford (gr. Mr. R. Staward).

Messrs. T. RIVERS & SONS, Sawbridgeworth, Herts., displayed a collection of Oranges, both fruits and plants. On former occasions at these meetings Messrs. RIVERS have displayed excellent groups of these fruits, but this time they surpassed all their previous displays, and it was undoubtedly the finest group of any subject in the hall. We have no space to catalogue the many varieties shown, but may state that the variety Achilles had 20 fruits on one branch, and Excelsior as many as 30, which may be taken as a criterion of the splendid culture seen in the exhibit. (Gold Medal.)

About 35 dishes of Apples were shown by O. PEARCE SEROCOLD, Esq., Taplow Hill, Taplow (gr. Mr. R. Bullock). Some of the varieties were presented in excellent condition, especially Melon Apple. There were also good dishes of Allington Pippin, Claygate Pearmain, Baxter's Pearmain, Cox's Orange Pippin, &c. (Silver Banksian Medal.)

AWARD OF MERIT.

Orange Excelsior.—This variety was selected from Messrs. RIVERS' group for its remarkable cropping qualities and its value as a decorative fruit tree. It is a very old variety, and has been grown at Sawbridgeworth for over 50 years. A small tree in the orangery has 115 fruits, and a branch exhibited had 30 Oranges, many being in clusters of from two to six. It belongs to the St. Michael type, is rather long, oval, and with somewhat thick rind, that is slightly ribbed. Mr. RIVERS informed us that the flavour of the fruits when ripe is very agreeable.

HORTICULTURAL CLUB.

FEBRUARY 12.—The annual general meeting of the members of the club was held at 5 p.m. on Tuesday, at the Hotel Windsor, Westminster, the president, Sir John Llewellyn, Bart., in the chair.

The report stated that there are now 124 members. The papers read at meetings held during the year included "Hybrid Orchids," by Mr. H. J. Chapman; "Parasitism," by Prof. Farmer; "Horticultural and Agricultural Education," by Mr. A. E. Brooke-Hunt; "In the World of Ferns," by Mr. C. T. Druery; "Co-operation," by Mr. T. W. Sanders; and "The Gooseberry Mildew," by Prof. Salmon. The annual outing took place in July, when nearly seventy members and friends visited the gardens at Halton and Tring, by kind invitation of Mr. Alfred de Rothschild and Lord Rothschild. Mr. Harry J. Veitch undertook all the arrangements on that occasion, and the outing proved to be a most enjoyable one. In August the delegates to the Hybridisation Conference were entertained at dinner by the invitation of Sir John Llewellyn. Owing to unusual circumstances, there was a deficit on the year's working of 17s. 9d.

The report was adopted, and the officers and committee re-elected.

The members and friends assembled at six o'clock for the annual dinner. The president, Sir John Llewellyn, presided over a company of sixty-five ladies and gentlemen. Mr. George Paul proposed the toast of "The Royal Horticultural Society," and having been present shortly before at the annual meeting of the Royal Horticultural Society, his speech was one of congratulation. Fortunate, indeed, said Mr. Paul, was a society which had an income of £5,000 a year more than it wanted! There were cries of "No" to this, however, and Mr. Paul then said "more than it has absolute need for." However, he was sure all were delighted to know that the society was so prosperous, and glad that the club had helped the society in various ways in dark days and bright days. They were pleased also to see that the society was putting its large income to good purpose, as was seen in the holding of the Hybridisation Conference, and in the establishment of a research station at Wisley. The society was growing rich, but there were no signs that it was also growing lazy. Mr. W. A. Bilney, in responding to the toast, said that he hoped Wisley would become the "hub" of horticulture in England. In connection with the subject of teaching at Wisley, Mr. Bilney said that at present there were 14 students there, and presently there would be 10 more from the Surrey County Council. At present students remained at Wisley for two years, but he hoped this would be altered to three years, and that part of the time would be spent in France and Germany, to enable them to acquire a knowledge of foreign methods and foreign languages.

The president proposed the toast of the "Horticultural Club." He said it was the daughter of the Royal Horticultural Society, and in entertaining the distinguished foreign visitors in August last, the club discharged one of its greatest duties, that of affording hospitality to eminent visitors to this country. Sir John announced that on March 5 Sir George Watt would deliver a lecture on the "Himalayas," illustrated with lantern slides. Mr. Geo. Monro responded. The toast of the "Visitors" was proposed by Mr. George Bunyard, and responses were made by Col. Prain, Director of the Royal Gardens, Kew, Mr. C. du P. Chiappini, Trade Commissioner to Cape Colony, and Captain P. C. Bam, M.L.G., chairman of the South African Produce Exhibition. Mr. Chiappini said he had only been in England for two days. He had brought 10,000 boxes of fruit with him, and he asked Britishers to help South Africa to right herself. For every box of fruit that arrives here from South Africa, there were twenty boxes of fruit rotting on the trees in South Africa. He wanted his friends here to befriend the fruit when it was placed on the English market. It may be stated here that Mr. Chiappini and Captain Bam have come to this country, as have also, amongst others, Mr. J. Burt-Davy (Transvaal) and Mr. Sim (Natal), in connection with the South African Exhibition to be held shortly in the R.H.S. Hall, Westminster.

The toast of "The Secretary, Mr. Cook," was proposed by the chairman and received with

musical honours. A good programme of vocal and instrumental music was rendered under the direction of Mr. Frank Morrison. Mr. Druery amused everyone present by his original recitation, "A Cheap Dinner."

SCOTTISH HORTICULTURAL ASSOCIATION

THE following extracts are taken from Mr. David Thomson's presidential address. The whole address is so suggestive and so stimulating that we hope it will be published in full and widely circulated.

In my last address I referred to many changes that might take place, and some of them have nearly come about. I think I drew your attention to the fact that the temperature of Stornoway in the month of January, 1906, was higher than it was in the South of France, but this year I find that the temperature of Iceland, a long way north of Stornoway, was higher than it was in many portions of Western and South-western Europe. It was 20 degrees warmer than in Edinburgh and 5 degrees higher than at Nice, and I made a suggestion that the time might come when tourists and invalids in quest of sunshine and warmth, instead of going to what has been termed the Sunny South, would have to come to Edinburgh and Stornoway as health resorts, but now it seems they will have to go still further north at this season of the year to seek the sun.

After alluding to various civic improvements of great local interest, the President continued:

IRELAND.

I paid a visit to Ireland during the past year, and have formed a very different opinion of our neighbouring island than I had done before. I there saw some of the best conducted horticultural establishments I have seen anywhere. I was very much surprised with the magnificence of some of their public parks and the natural beauties of its scenery.

But what struck me most was to see the dreadful state this grand country is getting into. Possessed as it is of the finest soil and the finest climate of any part of the United Kingdom, it is becoming a barren waste, and all this after successive Governments have tried to improve its condition. The land in Ireland that has been given over to the peasantry is going out of cultivation, because the peasants have neither the knowledge nor the means to cultivate it.

So far as I can see the only way to save Ireland is to begin and educate the rising generation, which, under existing circumstances, will be a most difficult matter to accomplish.

Our excursion this year is to visit the Glasgow parks, and there is a great treat in store for all those who have not yet had the privilege of inspecting those parks. There is no town I know of so well supplied with public parks or where gardening, in nearly all its branches, is so ably carried out under great climatic difficulties as it is in the western city.

Since the Mendelian theory has been expounded, many cross-bred and hybrid plants have been developed, which have tendencies that conform pretty definitely to mathematical rules, and this theory has placed the work of plant-breeding, particularly with hybrids, upon a very much more satisfactory basis than it was previously.

There have been some new diseases to record, and the latest of these, the Gooseberry-mildew, which I have already brought under your notice, that threatens to exterminate that fruit. I hope, however, some means will still be found to stay its disastrous progress. I have not heard of its appearance in Scotland as yet, but as I have warned you against it, I hope that if any of you should discover its existence, you will bring the matter before this association.

During the last 12 months there have been several new Acts of Parliament passed, some of which affect horticulturists. I will only mention a few.

Should a gardener fall down the steps of one of those grimy stone-holes I referred to last year, and break his neck, his employer will have to provide for his wife and his family until they can provide for themselves, and should a gardener, while engaged in painting at the back of a north wall in the winter time miss the head of the nail and hit his finger, which might necessitate the amputation of his hand or arm, the employer will have to provide for him for life, and should a gardener meet with any accident when in the execution of his duties, always assuming, of course, that he is "compos mentis," his employer will be liable in expenses for his support. Another Act now in force ordains that you cannot keep a dog unless you have a collar, with your name and address round his neck, and should he attack a burglar or trespasser, and inflict injuries upon them, the owner must pay the costs.

There is only one more Act which has recently come into force to which I will refer, and it is one that affects us all very closely. It bears an ugly name. It is called "The Prevention of Corruption Act." I suppose you have all heard of this new Act and the terrible penalties that follow on all those who break the law.

The Potato boom has passed away, and the gentlemen engaged in that particular branch of horticulture have got back to their normal condition. The northern star in the firmament above still shines bright to guide the mariner in his trackless path, but the northern star of this hemisphere seems to have sunk into oblivion somewhere in the vicinity of Musselburgh or Inveresk, and the El Dorado is no longer heard of. The "Factor," I am told, has come to stay, but we all know that factors will thrive where others would starve.

Potato-growers have now begun to turn their attention to the better cultivation of the older sorts, and I would like to ask if it is not possible to produce a race of Potatoes that will be disease-resisting through inoculation when hybridisation has failed.

The medical profession have found antidotes for many human diseases. They have been able to counteract the ill effects of small pox, they have been able

to find an antidote for hydrophobia, and for many other dire diseases. Can we not find an antidote to the Potato disease and other diseases affecting plant life?

Three hundred years of European cultivation have left the Potato plant as tender as ever it was, and one sharp spring frost is sufficient to kill the plants to the ground. And I would here ask our Potato growers if we are cultivating this plant in the proper way? Is it wise to have Potato breadths moulded up as is commonly done? That it is done chiefly to keep the tubers from exposure to light and air is the case, but it still remains a question how far the practice may be detrimental to the robustness of the plant. The method of propagating Potatoes by means of sprouts or cuttings taken from tubers forced into premature growth in warmth under glass has led to its deterioration, and means ruin to the constitution of the Potato.

It would be interesting to note the effects of earthing up and non-earthing up on the Potato. It is not earthed up in its natural state, and if anyone could only produce a Potato that could be used without boiling, a process in which the best of Potatoes are nearly always destroyed, but that could be peeled and eaten like an Apple, he would not only be able to sell it at the fabulous price that some of those now obscure varieties were sold at, but he might even be raised to the Peerage!

NITRIC ACID FROM THE ATMOSPHERE.

Widespread interest and gratification will be aroused amongst agriculturists and horticulturists by the intelligence that a method of extracting nitric acid from the atmosphere has been discovered. This is the latest of a series of recent discoveries which would seem likely to be of the utmost value to agriculturists, who are considerably handicapped by the high price they have now to pay for nitrogenous manure. It is known that in the atmosphere there are practically inexhaustible stores of nitrogen, and this is already being brought into use in two forms of manure, the nitrogen of which is drawn from that source. These manures are nitrate of lime, made in Italy and Germany. If the new discovery should lead to the introduction of other forms of nitrogenous manure at more moderate prices, the gain to agriculture may be very great.

I have referred to a few matters outside our association, which I hope may be of interest to you, and I will now come to deal with some of our own affairs.

We have increased our membership, and have consequently increased our revenue from subscriptions.

We have developed our annual flower show, and it is now one of the finest of its kind in the country, but we want still further development.

(To be continued.)

ROYAL GARDENERS' ORPHAN FUND.

FEBRUARY 8.—The annual meeting of the supporters of this charity was held on this date at "Simpson's," Strand. Mr. H. B. May chairman of the Executive Committee, presided, and there were present about the usual number of subscribers.

EXTRACTS FROM THE REPORT OF THE EXECUTIVE COMMITTEE.

The nineteenth annual report of the committee now presented practically concludes the second decade of the fund's existence. Since its foundation, in 1897, the receipts from all sources amount to the grand total of £24,937 9s. 11d., of which sum no less than £16,573 2s. 6d. has been expended in assisting in the maintenance and education of the orphan children of gardeners, and in otherwise helping to give them a start in the battle of life—the special object for which the charity was founded. During the same period of 20 years, investments have been made amounting to over £11,000, yielding a permanent annual income which covers all ordinary working expenses and leaves an acceptable balance to the credit of the fund. The total number of orphans who have been elected to receive the benefits afforded by the charity is 217. At the commencement of the year 90 children were receiving the full allowance of 5s. per week, and to this number 13 were added at the annual meeting, while assistance has been rendered to 19 candidates waiting for election.

The committee again gladly record the fact that the accounts presented show an appreciable increase in the ordinary sources of revenue over the total of the previous year, and their gratification in this respect is greatly enhanced by the knowledge that the increase is largely due to the fact of a greater number of gardeners than heretofore having become subscribers. The expenditure in allowances made to the children during the year shows a slight diminution as compared with the total in 1905, owing to some 225 less having been expended in the item of extra assistance given to children who have ceased to be chargeable to the fund.

The annual dinner, held at the Hotel Cecil on May 10, under the presidency of the treasurer of the Royal Horticultural Society, J. Gurney Fowler, Esq., proved a greater success in every way than any preceding festival, and for the first time in the history of the fund—thanks to the chairman's most appreciative advocacy of the claims of the fund upon all who take pleasure in their gardens—the subscription list amounted to over £1,000.

With the greatest possible pleasure the committee make the announcement that the Rt. Hon. the Lord Mayor, Sir William Treloar, has kindly consented to preside at the next festival, which has been arranged to take place at De Keyser's Royal Hotel, Victoria Embankment, E.C., on Thursday, May 23, and it is sincerely hoped that all supporters of the good cause will assist the committee to their utmost on that occasion to make the presidency of "The Children's Lord Mayor" a memorable event of the year in the horticultural world.

Early in the year the committee received a proposition from the Messrs. C. & W. Bonton, of The Oaks, Herman Hill, Snarebrook, to place a child of their late gardener on the Fund in consideration of the payment of a lump sum, as provided for by rule 12, but with the stipulation that the child shall be paid the usual allowance of five shillings per week until he is 14 years of age, even though his mother

should marry again in the meantime or not. Desirous at all times of making the Fund as useful as possible, and recognizing the generous spirit evinced by the Messrs. Bonton in their desire to benefit the orphan child of a faithful employee, the committee gladly accepted the trust.

The members of the committee who retire by rotation are Mr. John Assbee, Mr. William Bull, Mr. William H. Cutbush, Mr. George Gordon, Mr. J. F. McLeod, Mr. T. A. Morris, Mr. R. Hooper Pearson, and Mr. William Roupell. To the great regret of all his colleagues, Mr. Morris finds that his business engagements do not permit of his attendance at committee meetings so regularly as he could desire, and on that ground he does not seek re-election, though his fellow workers feel sure that his interest in the Fund will remain as keen as ever. Messrs. Assbee, Bull, Cutbush, Gordon, McLeod, Pearson and Roupell, all being eligible, offer themselves for re-election. For the seat vacated by Mr. Morris, the committee recommend the election of Mr. David Ingamells, 27, Catherine Street, Covent Garden, W.C.

The balance-sheet showed that the income of the fund during the past year from all sources was £2,573 12s. 2d. (including a balance from the last account of £697 0s. 10d.). A profit of £843 13s. 8d. was made in connection with the holding of the annual dinner in May last. From invested funds, dividends were received amounting to £354 1s. 3d., and from subscriptions and donations (other than those given in connection with the annual dinner), £537 11s. 8d. The following are the principal items on the "expenditure" side:—Allowances to orphans, £1,278 2s. 6d.; grants in aid, £120 7s. 6d.; secretary's salary and clerical assistance, £130; purchase of £114 2s. 5d. 2½ per cent. Consols, £100. The total expenditure, including investments (also balances at bank and on deposit of £771 19s. 8d.) was £2,573 12s. 2d.

The chairman, in moving the adoption of the report, said that it was satisfactory for them to know that in the past twenty years the fund had raised a sum of £24,937 9s. 11d., and that as many as 217 orphans had benefited from their charity. The income continued to increase each year, and he (Mr. H. B. May) was glad to state that some of the increase during the past year was due to the greater amount contributed by gardeners themselves. As showing that there are more subscribers, Mr. May stated that 147 more voting papers were issued this year than last year. The motion for the adoption of the report and balance-sheet having been seconded by Mr. William Marshall, V.M.H., late chairman of the Executive Committee, it was carried unanimously. On the proposition of Mr. Assbee, seconded by Mr. Alderson, Mr. J. Gurney Fowler was elected a vice-president. Mr. Edward Sherwood was re-elected treasurer on the proposition of Mr. Poupert, seconded by Mr. Bull. Mr. Rudolph Barr was re-elected auditor on the proposition of Mr. J. F. McLeod, seconded by the local secretary from Southampton.

The retiring members of the committee were all re-elected, with the exception of Mr. Morris, whose place was filled by the election of Mr. David Ingamells.

The chairman proposed the re-election of Mr. Bryan Wynne, and the motion having been seconded by Mr. W. Bates, it was carried unanimously.

ALTERATION OF RULE.

In accordance with notice, the chairman proposed to alter Rule 4 by omitting the word "secretary" in the fifth line, the alteration being regarded as already overdue, owing to the position of secretary having ceased to be honorary. The motion was adopted without debate.

ELECTION OF ORPHANS.

The following gentlemen having been elected scrutineers of the ballot, the meeting was adjourned until 4.30:—Messrs. Alderson, Cutbush, Cuthbert, Howe, McLeod, Pearson, and Poupert. On the meeting reassembling, the chairman announced that one of the candidates was withdrawn from the list owing to the mother having married since the list was drawn up. He declared, therefore, the following candidates duly elected:—

	Votes.
Ivy Constance Warwick	408
Nellie Kathleen Wright	397
Gertrude Elma Prime	363
Annie Violet Claxton	356
Jane Laing	331
Jno. Edgar Stride	310
Edith Fanny Cooper	273
Annie Wade	249
Herbert Charles Renshaw	248
F. B. Gascoigne	241
Mary Janet Reid	235

	Votes.
M. E. M. Mullens	228
C. A. Boyce	228
Gladys V. Blackmore	174
Amy Tebbutt	173
William S. Harrison	167

The chairman then said that owing to the retirement of one of the candidates, there were only three upon the list who were unsuccessful, and having regard to the fact that since the close of the year the receipts had been unusually good, and to other circumstances which had happened since the list was drawn up, the committee would be prepared to accept a resolution from the subscribers having for its purpose the election of these also. The resolution having been proposed by the local secretary from Southampton, and seconded by Mr. Harry J. Veitch, the election of Lewis E. A. Tickner, Sarah E. Dudley, and Daisy Ethel Wiggins was carried by acclamation. Thus there were 19 fresh beneficiaries added to the list.

THE FRIENDLY DINNER.

In the evening the committee and a few friends dined together, also at "Simpson's," when Mr. H. B. May presided, and there were about 30 present, including the late chairman, Mr. W. Marshall, V.M.H.

Obituary.

GEORGE MORRISON.—We regret to learn of the death of Mr. George Morrison, for 32 years gardener to Sir George Wombwell, Bart., Newburgh Priory, Yorkshire. After retiring from service in November last deceased went to live with a



THE LATE GEORGE MORRISON

relative at Loch of Liff, near Dundee, where he died on the 8th inst. in his 79th year. He was born in 1828, on the estate of Castle Menzies, in the parish of Ween, Perthshire, and at an early age he was apprenticed to gardening at Scone Palace, the seat of the Earl of Mansfield, near Perth. When quite a young man he came to England, and was later engaged as gardener to Lord Wolverton, in whose service he remained for nearly 20 years. In 1875 he was appointed gardener by Sir George Wombwell. I had the pleasure of knowing the deceased for many years, and also the family whom he served, and it was pleasant to hear how highly the family appreciated their gardener, and how well the latter esteemed his employer. Mr. Morrison was well known as a successful cultivator of fruits. At the York Galas and at various other horticultural shows in the North of England his services were requisitioned as a judge. He was never married. His remains were laid to rest in a sunny spot selected by himself in the beautiful parish churchyard of Liff, on the 11th inst., and were followed by a large company of sorrowing friends. In seeing the grave close over this good old gardener I could not help recalling in my own mind—

Time, like an ever-rolling stream,
Bears all its sons away;
They fly forgotten, as a dream
Dies at the opening day.

—Alex. Innes, Hallyburton, Coupar-Angus, N.B.

JOHN WALLIS.—We are now able to publish a photograph of this esteemed and lamented gardener, whose death was announced in our last issue. He served as a young man for some time under the late Mr. Hill in Keele Gardens, near Newcastle-under-Lyme, Staffordshire. In November, 1872, Mr. Wallis was appointed gardener at Osmaston Manor, Derby, in succession to Mr. Harrison. He only remained at this place for a period of six months, for on the death of his employer, Mr. Wright, the Orchids, stove and greenhouse plants were sold, and there was a general reduction in the establishment. In the same year, or early in 1874, Mr. Wallis was appointed gardener to E. M. Mundy, Esq., at Shipley Hall, Derby, where he remained for six years, during which time he remodelled the gardens and erected a fine range of curvilinear fruit and plant houses.

Mr. Wallis returned to Keele in 1878, and succeeded Mr. William Hill as gardener to the Rev. Walter Sneyd. Mr. Hill, who died in May, 1878, was known all over these islands as a most skilful cultivator of the Grape vine. He won prizes for Grapes at all the important exhibitions, and he occasionally exhibited his fruit on the Continent with equal success. Fruit culture was pursued at Keele by Mr. Wallis with the same ardour as by Mr. Hill, but the vines were cultivated with rather less regard to exhibiting them.

Mr. Wallis made a speciality of Fig-culture, paying much personal care to the trees, and

every shoot should be straightened and the trees be trained perfectly. Many a winter's day was spent in doing this work, but the time was always accorded cheerfully. Pines, Melons, Apricots, Cucumbers, and Tomatos were grown in considerable numbers under glass, and many Strawberry plants were forced each year. When Mr. Wallis had been at Keele for some years the establishment suffered a severe loss in the death of its owner, the Rev. Walter Sneyd. His son and heir, Mr. Ralph Sneyd, never appeared to regard Keele with much affection as a residence, and eventually the place was leased to the Grand Duke Michael of Russia, the present tenant. Mr. Wallis retired in March, 1899, and has since lived at Woore. He was greatly interested in bees, and knew much of their habits. All who knew the deceased gardener respected him for his conscientiousness. He was straightforward, genial, and kind, and he supported the gardening charities to the best of his ability. For many years he acted as a judge at the Shrewsbury, Wolverhampton, Hanley, and other important exhibitions, and he officiated at Shrewsbury last year. His illness scarcely lasted a week, and it was not until two days before his death that it was thought to be serious. Mr. Wallis married twice. He leaves a widow and seven children to mourn his loss.

LYNCH WHITE, J.P.—We regret to learn of the death, on the 5th inst., at Leigham House, Streatham, S.W., of Mr. Lynch White, J.P., in his 87th year. Mr. Lynch White was the founder of the business which, for many years past, has been carried on as the Thames Bank Iron Company, in Upper Ground Street, S.E., and of which Mr. W. Y. Baker is now the sole proprietor.

MARKETS.

COVENT GARDEN, February 13.

Cut Flowers, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Azalea Fielderi, per dozen bunches	4 0-6 0
— mollis, p. bch.	1 0-1 6
Anemones, per doz. bunches	3 0-4 0
Bouvardia, per doz. bunches	4 0-6 0
Calla africana, per dozen	4 0-6 0
Camellias, white, per dozen	2 0-3 0
Carnations, per dozen blooms, best American	3 0-6 0
— smaller, per doz. bunches	12 0-18 0
Cattleyas, per doz. blooms	12 0-15 0
Christmas Roses, doz. blooms	1 0-2 0
Daffodils, doz. bchs.	6 0-9 0
Dendrobiums, per doz. blooms	2 0-3 0
Eucharis grandiflora, per doz. blooms	4 0-6 0
Euphorbia jacquiniiflora, per bunch	0 9-1 0
Gardenias, per doz. blooms	6 0-8 0
Heather, white, pr. doz. bunches	3 0-6 0
Hyacinth (Roman), p. dz. bunches	5 0-9 0
Lilac, white, p. bch.	3 6-4 0
Lilium auratum	3 0-4 0
— lancifolium, rubrum and album	3 0-4 0
— longiflorum	6 0-8 0
Lily of the Valley, p. dz. bunches	6 0-9 0
— extra quality	12 0-18 0
Marguerites, white, p. dz. bunches	3 0-4 0
Marguerites, yellow, doz. bchs.	3 0-4 0
Mignonette, per doz. bunches	2 0-3 0
Narcissus, paper white, per doz. bunches	2 0-3 0
— Gloriosus	3 0-4 0
— Poeticus, per dozen bunches	5 0-8 0
— Soleil d'Or, per dozen bunches	3 0-4 0
Odontoglossum crispum, per dozen blooms	2 6-3 0
Pancratium, dz. fls.	4 0-6 0
Pelargoniums, show, dz. bchs.	6 0-9 0
— Zonal, double scarlet	6 0-9 0
Poinsettias, per dz.	8 0-12 0
Primula (double white), dz. bchs.	6 0-9 0
Ranunculus, per dozen bunches	8 0-12 0
Roses, 12 blooms	3 0-5 0
— Niphetos	4 0-6 0
— Bridesmaid	4 0-6 0
— General Jacqueminot	4 0-6 0
— Kaiserin A. Victoria	4 0-8 0
— C. Mermet	3 0-6 0
— Liberty	6 0-8 0
— Mad. Chateau	4 0-8 0
— Mrs. J. Laing	6 0-8 0
Snowdrops, per doz. bunches	1 6-2 6
Stephanotis, per dozen trusses	6 0-8 0
Tuberose, per doz. blooms	0 4-0 6
Tulips, doz. bchs.	9 0-12 0
— Special varieties	18 0-24 0
Violets, doz. bchs.	2 0-4 0
— Parma, p. bch.	4 0-6 0

Cut Foliage, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Adiantum cuneatum, doz. bun.	4 0-6 0
Asparagus plumosus, long trails, per doz.	6 0-9 0
— medium, bunch	1 6-2 0
— Sprengeri	0 6-1 0
Berberis, per doz. bunches	2 6-3 0
Croton leaves, bch.	1 0-1 6
Cycas leaves, bch.	1 6-2 0
Fern, English, per dozen bunches	2 0-3 0
— French, dozen bunches	2 0-4 0
Galax leaves, per dozen bunches	2 0-2 6
Hardy foliage (various), per dozen bunches	3 0-9 0
Ivy-leaves, bronze long trails, per bundle	1 6-2 0
— short green, doz. bunches	2 0-3 0
Moss, per gross	4 0-5 0
Myrtle (English), small-leaved, doz. bunches	4 0-6 0
— French, dozen bunches	1 0-1 6
Pernettya, with berries, per bunch	0 9-1 0
Smilax, per dozen trails	2 0-3 0

Plants in Pots, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Ampelopsis Veitchii, per dozen	6 0-8 0
Aralia Sieboldi, per dozen	4 0-6 0
— larger	9 0-12 0
Araucaria excelsa, per dozen	12 0-30 0
Aspidistra, green, per dozen	18 0-30 0
— variegated, dz.	30 0-42 0
Asparagus plumosus nanus, doz.	9 0-12 0
— Sprengeri, doz.	9 0-12 0
— tenuissimus, per dozen	9 0-12 0
Azaleas (Indica vars.), per doz.	30 0-42 0
— mollis, each	3 6-10 6
Begonia Gloire de Lorraine, p. dz.	12 0-18 0
— Turnford Hall, per dozen	12 0-18 0
Callas, per doz.	12 0-18 0
Cinerarias, per dz.	6 0-9 0
Clematis, per doz.	8 0-9 0
— in flower	9 0-12 0
Cocos Weddelliana, per dozen	9 0-18 0
Crotons, per dozen	12 0-30 0
Cyclamen, per dz.	10 0-15 0
Cyperus alternifolius, dozen	4 0-5 0
— laxus, per doz.	4 0-5 0
Daffodils, per doz.	9 0-12 0
Dracenas, per doz.	9 0-24 0
Erica hyemalis, per dozen	15 0-18 0
— gracilis, p. dz.	10 0-15 0
Erica melanthera, per dozen	9 0-18 0
— Wilmoreana, p. dozen	12 0-18 0
— persoluta alba	24 0-30 0
Euonymus, per dz.	4 0-9 0
Ferns, in thumbs, per 100	7 0-10 0
— in small and large 60's	16 0-25 0
— in 48's, per dz.	4 0-10 0
— in 32's, per dz.	10 0-18 0
Ficus elastica, doz.	9 0-12 0
— repens, per doz.	4 0-6 0
Genistas, per doz.	9 0-12 0
Hyacinths, per dz.	12 0-18 0
Kentia Belmoreana, per dozen	12 0-18 0
— Forsteriana, per dozen	12 0-21 0
Lantana borbonica, per dozen	12 0-18 0
Lilacs, each	4 0-10 0
Lilium longiflorum, per dz.	18 0-30 0
— lancifolium, per dozen	18 0-24 0
Lily of the Valley, per dozen	18 0-30 0
Marguerites, white, per dozen	6 0-9 0
Orange trees in fruit, each	3 6-5 0
Primulas, per doz.	4 0-5 0
Selaginella, dozen	4 0-6 0
Solanum capsicastrum, per doz.	8 0-12 0
Spiraea japonica, dz.	9 0-15 0

Fruit Average Wholesale Prices.

	s.d	s.d.			s.d	s.d.
Apples, per barrel			Grapes (English),			
— Nova Scotian :			— Alicante, p. lb.	1	3-2	6
— Fallwaters ...	23	0-24	— Gros Colmar,			
— Russets ...	23	0-25	— per lb.	1	4-3	0
— Greenings ...	16	0-18	— Almerias, per			
— Starks ...	21	0-22	— dozen lbs. ...	6	0-8	0
— Baldwins ...	16	0-18	— Almeria, barrels	22	0-25	0
— Blenheims ...	20	0-21	Lemons: ...			
— Ribstons ...	27	0-28	— Messina, case	8	6-16	0
— King of the			— Lychees, per box	1	0-1	2
— Pippins ...	23	0-24	— Mandarines, boxes	1	3-1	6
— Canadian, per			— Palermos, 100's,			
— barrel :			— box	4	0-4	8
— Russets ...	25	0-27	— Nectarines (Cape)	8	0-12	0
— Greenings ...	22	0-23	Nuts, Cobnuts, per			
— Ben Davis ...	17	0-18	— doz. lb.	6	0-6	6
— Baldwins ...	18	0-19	— Almonds, bags	54	0-	
— U.S.A., New-			— Brazils, new,			
— town's, p. barrel	25	0-30	— per cwt.	65	0-	
— Newtown Pippins, per case	10	6-16	— Barcelona, per			
Apricots (Cape),			— bag	32	6-	
— per box ...	5	0-7	— Cocoa nuts, 100	10	6-18	6
Bananas, bunch:			— Chestnuts, Red-			
— West Indian,			— don bags ...	7	0-9	0
— red ...	7	6-	— Italian bags ...	11	0-13	0
— No. 1 ...	6	6-7	Oranges, per case:			
— No. 2 ...	5	6-6	— Valencia ...	10	0-30	0
— Extra ...	8	0-10	— Jamaica ...	10	6-11	6
— Giants ...	10	0-12	— Navels ...	11	0-12	6
— Jamaica ...	4	6-6	— Jaffa ...	10	0-12	6
— Loose, per dz.	0	9-1	— Seville Bitters,			
Cranberries, per			— 200's, boxes ...	8	0-10	0
— case ...	12	0-	Peaches (Cape) ...	8	0-12	0
Custard Apples, p.			Pears (Californian),			
— dozen ...	4	0-6	— per case ...	10	0-11	0
Dates (Tunis), doz.			Pineapples, each ...	2	3-3	6
— boxes ...	4	0-	Plums (Cape), per			
Grape Fruit, case	11	0-11	— case ...	4	0-6	0

Vegetables: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Artichokes (French), per dozen	3 6 —
— English, ½ bush.	1 6 —
— bags	3 6 —
Asparagus, Sprue French, bundle	0 6-0 8
— French Giant, per bundle	25 0-30 0
— Paris Green, bundle	4 9-5 8
Beans (French), packet	0 6-0 8
— Jersey, per lb.	1 0-2 0
— Haricots, pr. bx.	1 6 —
— Madeira, per basket	3 0 —
— Niger, p. bask.	4 6 —
Beetroot, bushel	1 6 —
Brussels Sprouts, per ½ bushel	1 6-2 0
Cabbages, per mat (about 30 to 40 heads)	2 6-3 0
— red, per dozen	2 0 —
Carrots, French pad	3 0 —
— per bag, unwashed	2 0 —
— washed	2 6-2 9
Cauliflowers, p. tally	6 0-8 0
— Italian, basket	5 0-6 6
Celeriac, per doz.	2 0-2 6
Celery, p. dz. bds.	8 0-10 0
Chicory, p. lb.	0 3-0 4
Chow Chow, p. dz.	3 0 —
Cucumbers, p. doz.	6 0-12 0
Endive, per dozen	1 6-2 0
Horseradish, foreign, per dozen bundles	12 0 —
Leeks, 12 bundles	1 6-2 0
Lettuces (French), per dozen	1 0-1 6
Lettuces (French), Cos, per dozen	3 0-5 0
Mint, per dozen	6 0 —
Mushrooms (house), per lb.	0 10-1 0
— Buttons, per lb.	1 0 —
Mustard and Cress, per dozen pun.	1 0-1 6
Onions (Valencia), case	7 0-8 0
— pickling, per bushel	2 0-2 6
— French, ½ bag	2 6 —
— Dutch, bag	3 0 —
— English, bag	4 6 —
Peas (French), per packet	0 5-0 6
— French, p. pad	5 0-6 0
Parsley, 12 bunches	2 0 —
— ½ bushel	2 0-2 6
Paranips, per bush.	1 3 —
— per bag	2 6 —
Potatoes (French), crates, per lb.	8 0 —
— Canary, cwt.	14 0 —
Radishes (French), per dozen	1 6-2 0
Rhubarb (English), per dozen	1 0-1 8
Salsify, p. dz. bds.	3 6 —
Savoy, per mat (holding about 30 to 40)	2 0-2 8
Seakale, doz. pts.	12 0-14 0
Tomatos: — Canary, per bundle	11 0-14 0
— Turnips, per cwt.	3 6-4 0
— bags	3 6-4 0
— washed, cwt.	4 0 —
Watercress, per doz. bunches	0 4-0 6



THE LATE JOHN WALLIS.

pruning them always with his own hands. We have never seen better-cultivated and more freely-cropped Fig trees than those at Keele, and for many years they continued to obtain 1st prizes at the Crystal Palace fruit shows. Taking advantage of the ease with which Fig trees may be grafted, Mr. Wallis employed this means to prevent any waste of space through want of young and fruitful growths near to the base of the larger and older trees. Grafts were inserted on the upper side of the main branches, sometimes as many as five or six on one tree, and these fruited very well in the following season, and grew with astonishing vigour. On some of the trees several varieties were thus grafted. Mr. Wallis never stopped any but the very strongest shoots on his Fig trees, preferring to cut out altogether those shoots for which there appeared insufficient space. It was the practice at Keele to employ considerable heat and much moisture in the Fig-house, and, whenever it could be safely done, a little ventilation was left open at the back of the house during all the night. The tree of "Brown Turkey" in the house at Keele at the present time covers a very large space, and has several varieties grafted upon it.

Peach and Nectarine trees under glass were another important feature of the fruit garden at Keele, and those gardeners who, in their younger days, served under Mr. Wallis, will remember how careful he was that

REMARKS.—Alicante and Gros Colmar Grapes are much firmer owing to a short supply, the Alicante being especially scarce. Bananas are dearer and good bunches are a very short supply indeed. Cape fruit is selling readily, and is a little cheaper. Canary Potatoes are a very bad trade. Business generally is quiet. *E. H. R., Covent Garden, Wednesday, February 13, 1907.*

POTATOS.

Bedfords, 65s. to 80s.; Blacklands, 60s. to 70s.; Lincolns, 70s. to 85s.; Yorks, 80s. to 100s.; Dunbars, 80s. to 110s.; Teneriffe, 18s. to 16s. cwt. *W. J. C. & S., Covent Garden, February 13, 1907.*

COVENT GARDEN FLOWER MARKET.

During the past few weeks growers have had no cause to complain, especially in the case of cut flowers. Last season was disastrous as far as Daffodils were concerned, but up to the present time prices have been much better this season, and samples which realised only 4s. per dozen bunches last year have made 9s. this season, and have cleared out well. I find this morning, however, that there is a general drop in prices. Callas, which were making 6s. to 7s. per dozen on Monday last, are down to 4s. this morning; Tulips and Daffodils are cheaper, and it is difficult to forecast even approximate prices for the next week or two. I am afraid growers will be overdone with good cut bloom when it is not wanted, but as Easter falls early, there will be an opportunity of keeping many things until then. It is certain that supplies will be over abundant for the next few weeks. On Monday last the new American Rose Richmond was making 15s. per dozen for special blooms on long stems. This is evidently a Rose with a future. Other good Roses have been making high prices, but a few days of mild weather may make a great difference in supplies. Carnations have been making good prices, but this morning they were cheaper, and it is probable that they will be cheaper still. Gardenias at the end of last week were making 8s. per dozen blooms, a price they have not reached for some years past. Eucharis are more plentiful. Among Orchids Cattleyas have been dear, but Dendrobiums and Cyripediums have not sold well. Double scarlet Pelargonium has been making high prices, and appear likely to do so. The old double white Primula has been selling better lately, and white Azalea (indica) has also realised better prices. We have not quite seen the last of the Chrysanthemums, but they are of poor quality.

POT PLANTS.

Cyclamen and Primula sinensis are both very good. Indian Azaleas are still the leading feature in pot plants, and Dutch bulbous flowers come next, so that Holland and Belgium are responsible for the best supplies of flowering plants just now in Covent Garden. Many foliage plants seen are also from Belgium. Cinerarias are arriving, and with better weather they will be useful. Genistas are more plentiful. In Ericas I have rarely seen better *E. Wilmoreana* than are to be had. *E. persoluta alba* is also good, though only brought in as pot plants. I find the florists use this extensively as cut bloom. Hyacinths, Tulips, Marguerites, Begonia Gloire de Lorraine, and Spiræa japonica are well supplied. Growers have not been sending quite such large quantities of foliage plants, but as soon as the weather is more settled the stands will be better filled. *A. H., Covent Garden Market, Wednesday, February 13, 1907.*

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending February 13.

A cold and wet week.—The present term of cold weather has now lasted four weeks, during which time there have been only three unseasonably warm days, and but one unseasonably warm night. On the coldest night during the past week the exposed thermometer registered 18° of frost. The ground is now 2° colder than is seasonable, both at 1 and 2 feet deep. Rain, snow, or sleet fell on each of the last five days, and to the total depth of rather more than an inch. These rains have restarted the drainage through the soil gauges, through neither of which had there previously been any measurable percolation for three weeks. The sun shone on an average for 8 hours 40 minutes a day, or for 1 hour 23 minutes a day longer than the average duration for the middle of February. On the brightest day 7 hours 23 minutes of bright sunshine was recorded, which is an exceptionally good record for the time of year. The wind continued on the whole rather high, but in no hour did the mean velocity exceed 14 miles—direction S.S.E. The average amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 2 per cent. The winter Aconite first showed an open blossom in my garden on the 11th inst., which is 23 days later than the average date of its first flowering in the same spot during the last 20 years, and later than in any year since 1891, or 16 years. *E. M., Berkhamsted, February 13, 1907.*

CATALOGUES RECEIVED.

A. & E. Moss, 46, King William Street, London, E.C.—Seeds.
BROWN & WILSON, 10, Market Place, Manchester—Farm Seeds.
A. LL. GWILLIM, Cambria Nursery, New Eltham, Kent—Begonias.
JOHN FORBES, Hawick, N.B.—Hardy Plants.
FRANK DICKS & Co., 68, Deansgate, Manchester—Seeds.
C. J. SIMPSON, St. John's Nursery, Mildmay Road, Chelmsford—Single Chrysanthemums.
HARRON'S, LTD., Brompton Road—Seeds.
WALTER T. PRATT, Stone Manufacturer, Wellington Road, Dudley—Garden pottery ware.
E. H. TAYLOR, Welwyn, England—Bee-keeping appliances.
EDWARD WISSEMAN, Elgin, Scotland—Seeds.
WM. BAYLOR HARTLAND & SONS, Ard-Cairn, Cork, Ireland—Seeds.
AUSTIN & McASLAN, 89, Mitchell Street, Glasgow—Seeds.
SUTTON'S, Reading—Farm Seeds.

TRADE NOTICE.

Mr. S. AISH, for several years Head Gardener to Major-General Hadden, C.B. Rossway, Berkhamstead, has commenced business as a Nurseryman, Seedsman, and Florist, at Church Street Nurseries, Dunstable.

ENQUIRIES AND REPLIES.

CAN any reader recommend small inexpensive books in German or in French relating to, 1, Agriculture, 2, Horticulture, 3, Elementary Botany? *L. E. N.*

ANSWERS TO CORRESPONDENTS.

* * * *The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.*

AMERICAN GOOSEBERRY-MILDEW: *D. H. H.* You will find an illustration of this disease in our issue for January 19 last, p. 43. A description by Mr. Geo. Massee was published on p. 143 of our issue for August 25, 1900. On page 409, December 15 last, was published the Board of Agriculture's report of this disease, containing information as to symptoms of an attack, and the preventive measures recommended.

CHEMISTRY OF THE PINES: *A Thirty Years' Reader.* The evergreen trees, including the Pines, absorb the atmospheric air and decompose the carbon dioxide, eliminating the oxygen under the influence of sunlight and fixing the carbon just in the same way as deciduous trees do. They also breathe just as other plants do.

CYANIDING VINES WHEN BREAKING INTO GROWTH: *H. S., Yorkshire.* We have had no experience in cyaniding vines when breaking into growth, but vines have been successfully treated before reaching the flowering stage. Use very small quantities of the cyanide (poison), and first see that the atmosphere is in a very dry condition and the temperature low. See Mr. Dobson's note p. 85 February 10, 1906. As Muscat of Alexandria is a vine susceptible to injury from fumigation, you should proceed even more cautiously when cyaniding this variety than in the case of the other vines.

EXAMINATIONS: *W. Y.* Apply to the Science and Art Department, South Kensington, and to the various polytechnics in London.

MIXED FUEL FOR HEATING APPARATUS: *E. A. D. D.* In our experience in the use of mixed fuel—anthracite, coke and bituminous coal—in the heating of horticultural boilers no harm to boilers has resulted therefrom. Coke and anthracite coal are frequently used together in the heating of horizontal and upright tubular boilers, the former being used the first thing in the morning whenever the temperature happens to be below the desired degree of heat, as it is quicker in action than the anthracite coal, which is used by itself in making up the fire for the night. The burning out of the side of boiler (a wrought iron saddle we presume) at the point where the cold water enters therein through the return pipe near the front of the furnace, is caused through the formation thereon of a calcareous deposit which results from the use of hard water and thereby forms a sort of division between the water and the iron. In some cases this blocks up the water-way, with the result that the iron necessarily burns through in a few years at this point. The injury referred to in your note was certainly not caused through the use of "mixed fuel." The "Economic" horizontal tubular boiler, introduced some 20 years ago by the Thames Bank Iron Company, is constructed with a water jacket fixed over the cradle of boiler, and covering all the top flow-pipes and connected with them. The jacket consists of two 3-inch water-ways one above the other, with a space of 3 inches between to admit of the flame passing between them. In this way the flame that would otherwise be wasted in heating the fire-tile covering of the top of the boiler about 4 inches above the pipes is utilised in heating and furnishing an additional supply of power. This is, in our opinion, a more efficient and economic water-jacket than the one you mention in your note. You might be able to have the sort of water-jacket indicated fixed on to your 9-foot

6-inch horizontal tubular boiler if the work is done during warm weather in summer. Cover your boiler with sufficient sand to form a kind of dome over it, and afterwards cover this with about 2 inches thick of a composition, made by mixing together with water two parts of silver sand and one part cement. This will not only preserve the heat about the boiler, but will also throw off and resist the effects of rain.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* PLANTS: *S. H.* We cannot name the specimen from the capsules only; they are those of some Malvaceous plant, probably a species of Hibiscus. —*R. J. P.* The shrub is not a Daphne but Pittosporum Tobira, the other plant is a Billbergia, probably *B. vittata*. —*F. V.* 1, Cyrtomium falcatum; 2, Cestrum fasciculatum; 3, Pteris cretica; 4, Pelargonium, we cannot tell which from a single leaf; 5, Alonsoa incisifolia; 6, Phyllocactus. Why send such abominable specimens? —*G. C. W.* An ordinary form of Dendrobium nobile. —*C. S.* Poinciana pulcherrima, from Uganda. —*H. G.* Lonicera Standishii.

NITRATE OF POTASH: *J. P.* Yours appears to be a good sample, but we cannot undertake its analysis. If you are a member of the Royal Horticultural Society you can have it analysed by the society's chemist at a low fee.

PLANTS FOR GLASS CORRIDOR-HOUSE: *J. W. M.* There should be no difficulty in keeping your glass-house bright with flowers all the year round, providing you look a season ahead and prepare your plants beforehand. The main batch of Chrysanthemums will be over by the end of December, therefore in January and February bulbs must be chiefly relied upon, including Narcissus, Hyacinths, Tulips, and Lily of the Valley. These might be mixed with Eupatoriums and Marguerites. For March and April there should have been prepared a good batch of Cineraria stellata, and Richardias will also be in full bloom. In May and June "fancy" Pelargoniums and Cytisus racemosus, Coronilla glauca, Rhododendron (Azalea) indicum, with flowering shrubs (hardy), such as Lilacs, Laburnums, Gueldres-Rose, will flower, these being followed by ivy-leaved and zonal-Pelargoniums, Coleus, Fuchsias and Begonias. Annuals cultivated in pots will be decorative in July and August, while Liliums, early-flowering Chrysanthemums, perennial Asters in pots, and Salvia splendens will keep the house gay during September and October, when the main batch of Chrysanthemums will commence to flower and continue bright until the end of the year. Most of the plants mentioned may be cultivated either out-of-doors or in frames, and upon their careful and proper preparation the results will depend.

RASPBERRIES: *J. R.* You do not read your *Chronicle* carefully. The information you require was given in our weekly calendar of the Hardy Fruit Garden, on page 39, in our issue for January 19. As yours is not a heavy soil, you should include Superlative in the list of varieties, for this is probably the best all-round variety of Raspberry. Belle de Fontenay and October Yellow are late fruiting varieties.

TWIN-SPATHED CALLA: *J. A. B.* Richardia africana frequently produces twin-spates under cultivation. Specimens such as that you have sent us are received repeatedly at this office.

COMMUNICATIONS RECEIVED.—*G. B.*—*H. C.*—*G. W. W.*—*M. A. T.*—*D. K. S.*—*E. A.*—*W. D.*—*E. P.*—*F. D.*—*S. S.*—*R. G.*—*R. M.*—*G. B. M.*—*J. J. G.*—*H. W.*—*P. F.*—*H. M.*—*A. G. S.*—*Auckland, N. Z.*—*R. W.*—*P. J. C.*—*E. H.*—*H. A. P.*—*R. P. B.*—*J. R. J.*—*W.*—*N. W. B.*—*H. T. H.*—*Geo. Mac K.*—*J. H. G.*—*T. L.*—*Mrs. W.*—Contributions to the R.G.O.P. box: *J. B.*, 1s.; *A. G.*, 1s.; *Wm. J. B.*, 1s.



THE Gardeners' Chronicle

No. 1,052.—SATURDAY, February 23, 1907.

CONTENTS.

Abies magnifica var. ... 114	Pears, late ... 125
zanthocarpa ... 114	Plant notes—
Aracaria imbricata ... 126	Ruscus species ... 116
Arbor Day in America ... 121	Plants, new or note-
Arboretum at Tervueren ... 122	worthy—
Belgian horticulturists ... 121	Disa equestris ... 114
Books, notices of—	Propagator, the ... 124
National Rose So-	Rhubarb show, a ... 126
ciety's Annual ... 114	Rock garden at Dun-
Our Kitchen Garden ... 121	fermine ... 121
Bothies for young gar-	Rosary, the ... 114
deners ... 122	Shrewsbury show for
Caladium seedlings, ... 122	1907 ... 122
variegated ... 125	Thalictrum, the species
Carnation house ... 125	of ... 118
Cordylines ... 120, 122	Trees and shrubs in
French exhibition, the ... 123	Scottish gardens ... 117
proposed ... 123	Societies—
Fruit plantations, winter ... 115	British Gardeners' As-
work in ... 115	sociation ... 127
Fruit Register ... 126	Coventry Chrysanthemum ... 127
Galloway House, Wig-	Linnean ... 126
townshire ... 123	National Chrysanthemum ... 127
Hydrangeas, blue ... 126	Royal Horticultural ... 121
Ilex cornuta ... 125	(Scientific Committee) ... 126
Judging at flower shows ... 127	Scottish Horticultural ... 127
Kerchove memorial, the ... 121	Shropshire Horti-
Kingston, Jamaica, a ... 122	cultural ... 127
note from ... 122	Week's work, the—
Malt coombes as manure ... 120	Apiary, the ... 119
Manures and their use ... 120	Flower garden, the ... 119
Market gardening—	Fruits under glass ... 118
Lilium candidum ... 116	Hardy fruit garden ... 119
Mice eating vines ... 125	Kitchen garden, the ... 119
Obituary—	Orchid houses, the ... 119
Strickland, Walter ... 122	Parks and gardens ... 118
Uxex, J. S. ... 127	Plants under glass ... 118
Orchid exhibition at ... 121	
Haarlem ... 121	

ILLUSTRATIONS.

Abies magnifica var. zanthocarpa ... 114, 115
Cordylina Banksii flowering in Dr. Ramsay's garden, Torquay (Supplementary Illustration).
Cordylina indivisa and C. australis in a Cornish garden ... 128
Orange "Excelsior" ... 124

THE SPECIES OF THALICTRUM.

THERE are several excellent garden plants among the *Thalictrums* that can be confidently recommended for the flower border, rock garden, waterside and woodland, but there are others wholly unworthy of room in a garden, being weedy, aggressive, or of botanical interest only. Probably the earliest species to be cultivated was the native *T. flavum*, a plant of some merit, but which is surpassed by at least a dozen species and varieties, some of which are almost unknown to gardeners. The latest arrival—*T. Delavayi*, from China—is a splendid plant whose graceful habit and pretty mauve-coloured flowers appeal most to the artistic sense; it shares, however, with other Asiatic *Thalictrums* the reputation of being somewhat difficult to manage. Several Himalayan *Thalictrums*, described as very beautiful, are not happy in this climate; one can do nothing with them, and they ultimately find their way to the rubbish heap, more dead than alive.

Those species easy to manage are European and American; they will grow in any well-tilled soil, and some of the coarser species can hold their own effectually in competition with grasses and other native vegetation.

Their propagation is effected simply by separating the resting crowns. Another method is to raise plants from seeds, but seeds of the different species, in common with most *Ranunculaceæ*, are naturally slow and irregular in germinating, inasmuch that two years may elapse between germination of the first and the last seedling in one pan containing seeds of one species gathered on the same day, whilst different species from various sources may vary still more.

SPECIES AND VARIETIES.

T. alpinum.—This little plant is the smallest of the genus, and so typically Alpine that one would intuitively plant it in a crack between boulders. It has delicate leafage but 3 inches high, coloured pale green, and is surmounted by dainty panicles of white flowers. It is found on British mountains, and extends northward to the Arctic circle.

T. anemonoides, variously known as *Anemone Thalictroides*, *Rue Anemone*, &c., is a dainty American plant that can only be successfully grown in moist grit and leafsoil at the foot of a rockery slope or at the margin of a pond or brook, where it would get shelter, moisture, and good drainage. It has curious tubercled roots, three-lobed *Adiantum*-like leaves in pretty verticils and panicles of white flowers, that more resemble those of an *Anemone* than of a *Thalictrum*, and which are pure white or pink-tinted, and surrounded by a collarette of leafy bracts. The plant is slender throughout, rarely exceeds a foot in height, and may be described as a marvel of delicate leafage and inflorescence. It blossoms in April, and again in September if the conditions at the root are cool and moist. The plant resembles our native *Wood Anemone* in many respects, and is even more refined and pretty.

T. angustifolium is a sturdy grower that will form a sheaf of pretty leafage 6 feet high overtopped with a foamy mass of pale yellow flowers in plumose panicles. The colouring is derived from the anthers solely, the petals being small and fugitive. It is a capital border plant, whose value lies in its light, airy grace rather than in colour and size of flower.

T. aquilegifolium is a useful and showy border plant that has long been cultivated. The type-plant has yellowish flowers in flattened panicles, consisting mainly of stamens closely aggregated into foamy masses. The stems are hollow, purplish, and are clothed with broad leaves modelled on the lines of those of the *Columbine*. These leaves vary in tint, but are more or less glaucous. Several garden forms have been reared, differing mainly in the colouring of the inflorescence. Of these, the best are *album* (white), *atro-purpureum* (dark lilac), *lilacinum* (pale lilac), and *roseum* (pale rose). All these forms average 3 feet in height, and, when fully established, are capable of throwing up stems that will give a mass of florescence 2 feet across in June. The species thrives in any soil, but reaches its fullest development in a strong loam, and is of considerable value for grouping by the waterside—the soft tints are just what are required for such a position, and the plant is strong enough to hold its own among the coarsest grasses.

T. Delavayi, from China, is the very best of its race. It is of slender growth, having thin, wiry stems 3 feet high, and slight, airy panicles of mauve-tinted, cupola-shaped flowers, that hang like tiny bells among the *Adiantum*-like leafage. It is more easily grown in a light, moist, sandy soil, and is seen at its best on a rockery slope. Few plants possess the natural grace of *T. Delavayi*. It forms a loose bush, in course of time, that is studded in July and August with hundreds of flowers. The leafage is of value for cutting, being of a deep sage green, with French grey reverse, and one gets a pretty shimmering effect when breezes show the reverse of the leaves and set waving to and fro the tiny tassels of yellow anthers suspending from each mauve dome. It should be planted in spring only. (See fig. 169, December 30, 1905.)

T. flavum, the familiar native meadow Rue, is a useful border plant for bold grouping. A single specimen is too attenuated to be effective, and it is only when forming a group that one can appreciate its true merit. The stems reach 6 feet in height, are sparsely clothed with grey-green, multi-pinnuled leaves, and surrounded by pale yellow panicked flowers, consisting mainly of stamens. It succeeds everywhere—amid shrubs, by the waterside, and in the wild garden. It will thrive in next to no soil, provided it gets plenty of moisture, and it associates well with the subdued colours characteristic of wild English landscape.

T. glaucum.—This plant is a glorified *T. aquilegifolium* with yellow flowers. It is extremely vigorous, and will reach 7 feet in height when established. The root-system covers a square yard, the stems are purplish, and well clothed with glaucous, pinnuled leaves of triangular outline, and they form distinct and imposing features in the plant border throughout summer. The inflorescence is a flattened panicle of soft yellow flowers 2 feet and more across, and when this has finished flowering, numerous subsidiary branches arise from every node of the stem and continue the display. It is a border plant of the first rank. I can recommend it for any position where a bold, imposing plant of refined colouring is required. Custodians of public parks will find it splendid for the decoration of isolated beds, whilst for the waterside, grouped as one would group *Spiræas*, it is very beautiful. *Flavescens*, a paler variety with green, not glaucous, leaves, is a good plant, but lacks many of the distinctive features of the type-plant, and its yellow colouring is reduced to silvery straw-yellow.

T. minus is the familiar *Thalictrum* of wild rocky districts of this country. Its garden value is comparatively slight, but several of its forms find favour for their neat habit and other good features.

Var. adiantifolia.—Practically all the forms of *minus* do duty for this variety from time to time. The true plant does not exceed 18 inches in height. It has minutely pinnuled leaves of a bluish-green tint, and slender panicles of greenish-yellow flowers, with violet-tinted anthers. It is somewhat rare, and is much valued as a rock plant for its pretty habit and diminutive leaves.

Var. elata is grown for its leafage mainly. It reaches 6 feet in height, forming an elegant bush surmounted by a cloud of greenish-yellow flowers in July. Its growths, cut any length, lend elegance to any arrangement of cut flowers, and they will prove useful for table decoration also.

Var. flexuosa is a kindred plant that could be put to similar uses. It has zig-zag stems, and its habit is more lax.

Var. purpurascens grows to 4 feet in height, and has clouds of purplish-tinted flowers that are none too well coloured.

Var. concinna is a dainty little plant of real worth. It has very pretty leafage and greyish-white flowers in clouds. It has the habit, and may be applied to the same uses as *Gypsophila paniculata*.

T. petaloideum.—A very pretty border plant that does not exceed 2 feet in height. It has tuberous roots that fork freely, slender stems in dense thickets, and white flowers in flattened panicles, the petals of which are white, persistent, and comparatively large. Individual flowers have the shape and size of *Anemone narcissiflora*. The wonder is this plant has not been a common inhabitant of gardens years ago. It prefers a light, well-tilled soil, and may be readily increased by simple division. The filaments are flesh-tinted when young.

T. purpurascens, from North America, is a vigorous species that one can recommend for border planting and for informal grouping by the waterside. It grows 6 feet high, and has the stems and leaves of *T. glaucum*—bold, massive, and very handsome. The inflorescence is a dense, drooping mass of purplish flowers 2 feet through, consisting mainly of filaments and sepals. It is a splendid plant—not at all well known, though quite easy to grow.

T. tuberosum is a petaloid species that prefers the drier slopes of the rock garden to the plant border. It rarely exceeds a foot in height. The leaves are marvels of delicate lobing, and the flowers are clustered as in the *Rue Anemone*, pure white, small in size, but freely produced at midsummer and again in autumn. It is just the plant to form a mass of flower and foliage on the rockwork.

Many other species might be added, but for garden purposes they are not equal to those already described. The Himalayan species alone are worth every effort to grow; they are of the type of *T. Delavayi*, but are even more intractable in our climate. *G. B. Mallett*.

NEW OR NOTEWORTHY PLANTS.

DISA EQUESTRIS, RICH. F.

This pretty *Disa*, described in *Flora*, 1865, p. 181, is flowering for the first time in The Right Hon. Lord Rothschild's gardens, Tring Park, Tring (gr. Mr. A. Dye), on a specimen obtained by the Hon. Walter Rothschild from Rhodesia, and identified, by the courteous assistance of Dr. Rendle, in the Botanical Department of the British Museum of Natural History, South Kensington.

The growth-crown has rather slender, lanceolate leaves about 6 inches in length. The inflorescence, which is about a foot in height, bears on the lower half, at wide intervals, a few

lanceolate leaves, getting smaller towards the flowering portion, where they appear as bracts. The showy part of the flowers consists of a broad, funnel-shaped dorsal sepal, which gradually tapers into a slightly clavate, obtuse, stout, horizontal spur, the whole being about an inch in length and pale-blue to light violet in colour. The less conspicuous organs are the deflexed lower sepals, which are pale violet; and the small white petals, on which is an elongated reddish spot at the tip.

The specimens in the Natural History Museum, marked Salisbury, Rhodesia, show great variation both in the size and number of the flowers on an inflorescence, some of them having forty or more. *J. O'B.*

ABIES MAGNIFICA VAR. XANTHOCARPA.

THIS superb Silver Fir, like so many others of its race, has had an unfortunate history so far as the names given to it are concerned. We

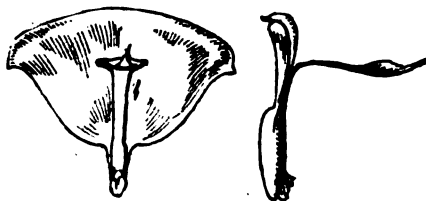


FIG. 51.—BRACT AND SCALE OF THE SHASTA FIR. To the left scale with upper part of bract seen in face. To the right is the scale seen in vertical section, and the bract projecting at right angles.

do not propose to go into this matter now, as we have done so already more than once. The name here used is that which we adopted in the *Hand-list of Conifera* published under the auspices of the late Director of the Royal Gardens, Kew. Nor do we propose at the present time to more than allude to the botanical history of the tree. It may suffice to say that, while some have considered it a form of *nobilis*, others have

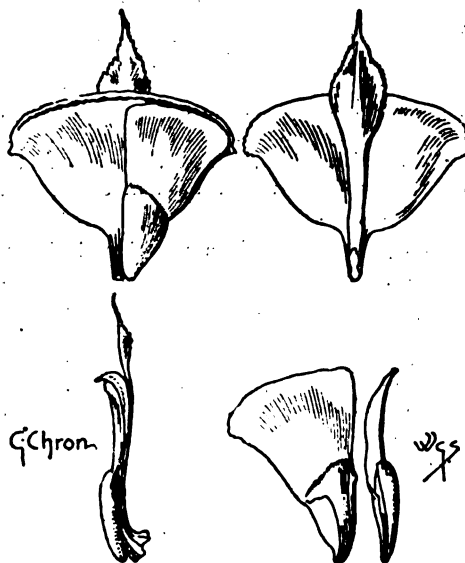


FIG. 52.—SCALES, BRACTS, AND SEED OF THE SHASTA FIR.

The bract is incorrectly shown as erect and appressed instead of projecting horizontally: see the right-hand drawing in Fig. 51.

referred it to *magnifica*, and a third made a new species of it under the name *Shastensis*. It is one of those relatively few cases where a vernacular name proves the most convenient. As the Shasta Red Fir it is easily recognisable. So far as cultivated plants are concerned, we first met with the species or variety, whichever it be, in the Cranston Nursery, near Hereford, many

years ago, and since then we do not remember to have seen a cultivated specimen till quite lately, when it was sent us by Mr. J. Crozier, from Durris, Aberdeenshire.

The foliage is like that of *magnifica*, and the shape of the cone also; but in the true *magnifica* the bracts do not protrude. In true *nobilis* the cones are more slender and more elongated, and the bracts are sharply bent downwards. In our present tree, therefore, the distinguishing characteristics reside in the thick, somewhat barrel-shaped cone, and in the bracts that project almost at right angles to the cone. These bracts are of a rich golden-brown colour, and are so striking as to justify our epithet superb.

With reference to the direction of the bracts, it may be pointed out that the delineations of the individual scales and bracts as isolated from the cone are often misleading. What is obvious enough when the whole cone is seen is by no means so apparent when detached or isolated scales are dealt with.

After long study and innumerable comparisons, we had satisfied ourselves as to the distinctness of *nobilis* and *magnifica*, but Mr. Crozier tells us that if we could see the very numerous trees under his charge we should find all kinds of intermediate specimens, to the increased perplexity of the unfortunate student. Only those botanists who have the opportunity of seeing the trees growing in their native habitats can be said to be qualified to give an adequate opinion, and they must study the tree not in one district only, but throughout the whole area in which it grows. It is very probable that many specimens are in the country, but until they produce their splendid cones they are not noticed. *M. T. M.*

THE ROSARY.

THE NATIONAL ROSE SOCIETY'S ANNUAL.

THIS publication is destined to supply the void left by the discontinuance of the *Rosarian's Year Book*, and to afford timely information of the doings of the National Rose Society. The report and balance-sheet, both very satisfactory documents, have already been commented on: they form the prelude to a sympathetic account of the late Rev. H. H. D'Ombra, the founder of the society and its secretary for a quarter of a century. Dr. Bernard Dyer's analysis of certain Tea Roses submitted to him is interesting, particularly as showing the relatively large proportion of lime that they contain. Basic slag, which contains lime and phosphorus, may, with advantage, be used in the proportion of 3 to 4 ounces per square yard, whilst nitrogen may be afforded by a dressing of dried blood or fish guano, followed by applications of the nitrate of soda. A good general manure for Roses consists of two parts of dissolved Peruvian guano containing 8 per cent. of ammonia, one part fine bone meal, half part of sulphate of potash, one part of dried blood, half part of nitrate of soda. The whole should be well mixed and applied in early spring at the rate of 5 ounces per square yard. A useful table is given showing the equivalent amounts required per square yard, square rood or perch, rood, and acre respectively. Mr. Mawley's analysis of Roses arranged in statistical form is useful in showing what are the prime favourites at any particular time, and also as indicating the rapid changes in the public taste as regard some varieties, whilst the fickleness of rosarians in some cases is balanced by the persistent favour accorded to other varieties. It is among the last-named that the novice should make his selection.

FRUIT-CULTURE.

WINTER WORK IN FRUIT PLANTATIONS.

PERHAPS a recital of my experience during the present winter will raise some points of interest to growers of fruit, and particularly to growers on a large scale for market.

The beginning was the planting of a field with Apples and Black Currants. The land had been prepared by chalking, ploughing and sub-

there were interruptions; and, if some wise prophet could have foretold the weather of January, there would not have been any resumption of planting until that month had begun. As it was, we had a fair beginning, a somewhat unfavourable middle period, and a good finish.

After all, if Mr. Spencer Pickering's experiments at Woburn, and those which he induced growers to make elsewhere, are to be trusted, the trees planted where the land was wettest

work well. It is a comparatively small and light one, which two horses can draw. Most of these old ploughs are too heavy for a pair of horses. The marking-out of the rows of trees and bushes 6 feet apart each way, was done with a ridging plough without its breast and a marker fixed to it. The stakes were driven in 2 or 3 inches to the north of each cross in a tree row left by the marking plough, and each tree was planted to the south of the stake, small straw

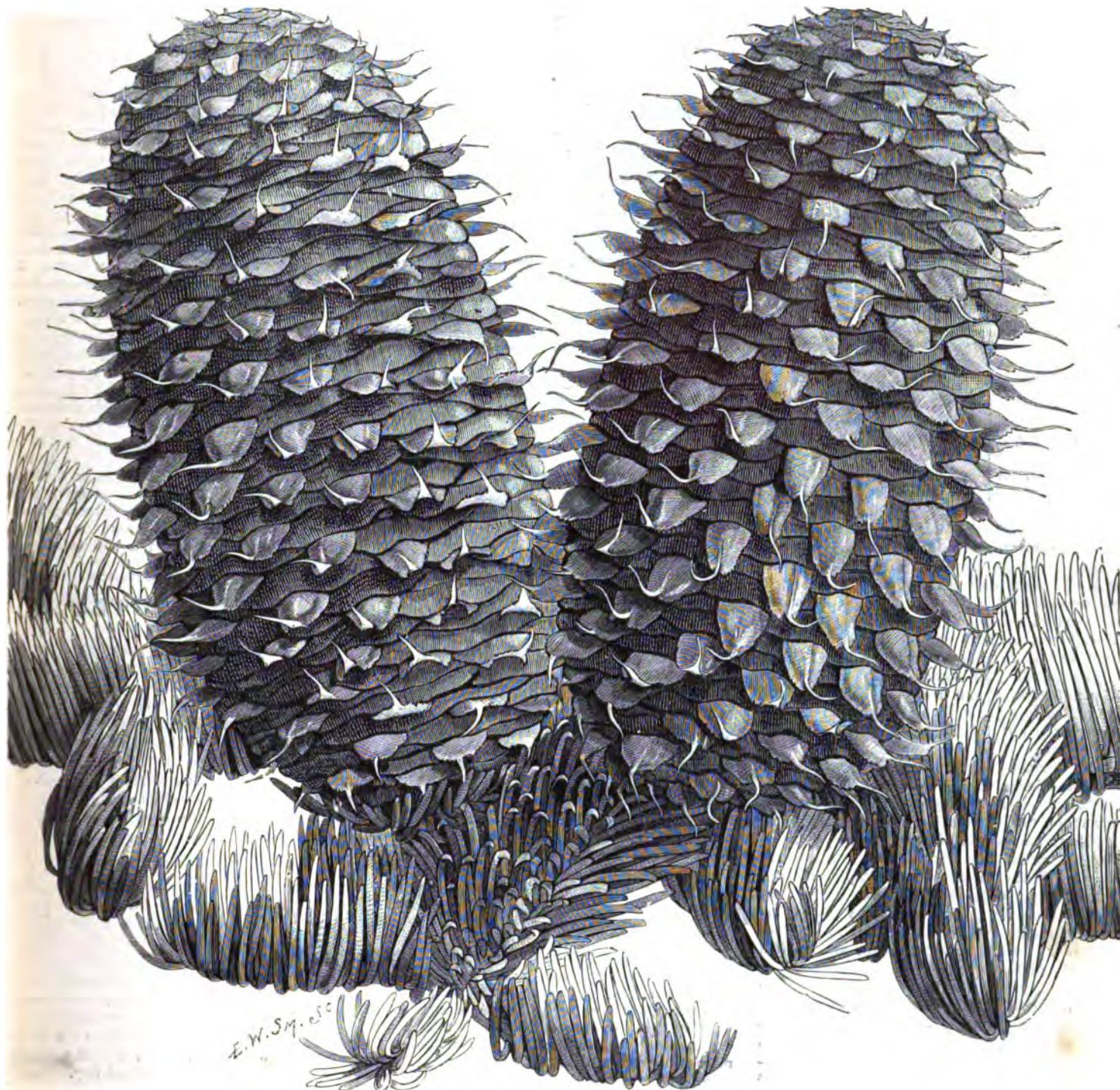


FIG. 53.—THE SHASTA FIR; *ABIES MAGNIFICA*, VAR. *XANTHOCARPA*, A CALIFORNIAN SILVER-FIR.

soiling before the extremely wet weather of November set in, and it was extremely disappointing to have good work neutralised to a great extent by the excessive rainfall. The only consolation was that the downfall showed patches in the field requiring draining, although most of it was drained some years ago; and this requirement was met accordingly. We had no rain worth mentioning from November 20 to December 13, so that a fortnight's fair planting up to the latter date was feasible. Afterwards

ought to grow best. One row was rammed, according to his directions, but not "puddled," as the soil was not wet enough—not being heavy—to churn up into mud. The row of rammed trees, however, is labelled for future observation.

The subsoiling, it should have been mentioned, was done with an old wooden "turn-wrest" plough, without the wrest on. This implement, which may often be bought at a farm-sale in Kent or Sussex for five or six shillings, does the

twists being used when tying the trees, to keep them from chafing against the stakes.

As the trees and bushes are in straight rows, up and down and across, horse cultivation will be possible in both directions for some years. To facilitate this, the trees, although intended to be trained in bush shape, are so trained that they have stems about 3 feet high.

Great inconvenience having been experienced in getting bulky manure on to plantations previously made, through the lack of roadways,

one row in every ten rows, counting both trees and bushes, was omitted for a roadway, which is where bushes would have come in. Thus, between each couple of roadways there are five rows of trees and four of bushes. As the field is a long one of nine acres, there is also a cross roadway through the middle of it, connecting the highway on one side and a farm road towards another highway on the other.

In relation to Black Currants, it may be worth while to mention that an experiment tried in planting part of the field last season has not been repeated. This consisted in the planting of the bushes up to the notches, with the idea that they would throw out more suckers from close to the roots. The results seem to indicate that this was a mistake, probably because the buds just above the roots were buried too deeply. The bushes were cut back severely to make them branch well before they come into bearing, and the trees will be treated in the same way in March or early in April. All the bushes planted this season were raised on the farm from cuttings taken from mite-free Boskoop bushes.

The Apple trees are of several varieties, all budded or grafted on the farm, some on crab-stocks, some on free-stocks, and others on Doucin stocks. Trees on the Paradise do not make enough wood on my land, or at least not on the lighter parts of it.

The reference to raising trees reminds me of the disappointing results of last season's budding, which was the worst for that operation ever experienced since it was first adopted by me. Not only was the drought severe and protracted, but, for some unaccountable reason, it was extremely difficult to find any considerable number of bold and well-ripened buds of many varieties of Apples. Most of the budding was done by myself, and the bark slipped well enough; but the scorching sunshine, day after day, or the pooriness of the buds, or both united, rendered failure as common as it had been rare in previous seasons. Plums, budded before the drought got to its worst, succeeded remarkably well, and so did Pears, done later than Apples.

The planting of some thousands of Black Currant-cuttings and some Apple stocks followed the tree and bush planting. The cuttings were made about 8 inches long, and were not disbudded. Why nurserymen usually disbud Black Currant cuttings is a mystery to me. No greater mistake could be made, as the more suckers there are to form branches straight from the roots, the better it is. With red and white Currants the case is different, as they bear on the old wood, and suckers are not wanted; whereas, Black Currants bear chiefly on the new wood, and, consequently, new shoots are wanted from the ground level every year to replace the old ones. The cuttings are planted with about half their length in the soil, so that only five or six buds appear above ground.

Winter pruning is in progress, but is in arrear, in consequence of stress of other work.

A more urgent topic is winter-spraying, and particularly the spraying of Gooseberry bushes, to keep birds from eating the buds. To avoid rendering this article too long, remarks on this subject must be deferred, excepting the prescription for the wash used, which may be immediately useful to some readers. The mixture mainly used this season, while experiments are being tried on a small scale with others, consists of 60 lb. of quicklime, 30 lb. of flowers of sulphur, 12 lb. of caustic soda, and 10 lb. of soft soap to 100 gallons of water. The method of mixing this wash, which is a self-boiling one, is important, in order that the sulphur may be made to combine well with the lime. The sulphur is beaten into a stiff paste, to get all lumps well broken, and is gradually diluted and poured over the lime to slake it. The mixture

should be well stirred while the slaking is going on, and next the caustic soda is added, again stirring until the boiling action has ceased. Then the soft soap, previously dissolved in boiling water or by actually boiling it, is added, and the whole, after another good stirring, and having water added to make up 100 gallons or a multiple thereof, is passed through a fine sieve of brass wire gauze. This mixture is effectual so long as it sticks on the bushes, and nothing yet tried is better than soft soap to make the lime and sulphur adhere to the buds. Somewhat profuse spraying is necessary to coat the bushes well. *A Working Grower.*

MARKET GARDENING.

LILIUM CANDIDUM.

Or late years, in both private and commercial gardens, the culture of this plant has been largely neglected. Its worth, either for its flowers, which are valuable for market purposes, or for the plant itself as a bedding subject and for the embellishment of the conservatory, entitles it to more extended culture. It is surprising how few of these plants are met with, and more especially as they are among the most easily cultivated plants when their requirements are understood. There is no doubt this lack of favour is in a great measure due to the many failures growers have experienced with bulbs procured from seedsmen and dealers. These bulbs are usually imported from the warm climate of the south of France, and are more or less liable to disease, against which there does not at present appear to be any really reliable preventive or remedy. Much of this trouble is caused through the bulbs being imported from such a warm climate, as the bulbs imported from Holland and North Germany are much more successful. Undoubtedly the finest bulbs obtainable, especially for early forcing, are those grown undisturbed for some years in England, and such as are obtained by dealers from small, country cottage-gardens. Another cause of trouble is the drying the bulbs undergo in lifting and transit, for of all bulbs or plants *Lilium candidum* most resents disturbance, and it is better treated as a green plant than as a dry bulb. Another cause of trouble is that many Continental stocks, and more especially the French, are of a different variety to our English, and although many persons would deny it, two distinct types of this plant exist. The less valuable, and the type to be rigorously avoided, is in growth much shorter than the other. The blooms are smaller, not so pure white, and are not so freely produced. The leaves are also much narrower and less numerous on the stem; the bulb can also be easily distinguished, as the scales are much smaller and narrower, while the bulb is inclined to develop a "neck," and is almost identical in shape with that of the old purple Tiger Lilies, *Lilium tigrinum purpureum*, whereas the true English type has very fat, thick scales, and the bulb is perfectly flat on the top, with an entire absence of any neck. This weaker Continental sort is cultivated by exporters in preference, on account of its being more readily obtainable for stock purposes, and also because it can be propagated more quickly and is not so difficult to cultivate. The primary and by far the most important detail to observe in its culture is to not replant oftener than is absolutely necessary. When grown for outdoor decoration, lifting the bulbs once every four or five years is quite often enough, and if the bulbs are cultivated for sale, better returns of large-sized, healthy bulbs will be the result if they are not lifted earlier than the fourth year after planting. August is the proper month to lift them, just after the tuft of new leaves shows above the ground. The bulbs should be planted as soon as possible after lifting and not allowed to become dry. Ample proof of the benefit of

leaving these plants undisturbed may be seen in the exceptional strength and vigour of the clumps found in cottage gardens, where they bloom year after year, producing immense inflorescences, with no trace of exhaustion or disease. The writer has known them to bloom in the same spot for ten years without deterioration. Any good garden soil suits them, but for preference it should be of a light nature and rich in plant food. When planting, dust each bulb with sulphur to prevent attack by the rust and the mildew disease. During the autumn and winter apply a dressing of soot and lime and a mulching of well-rotted manure to the soil, which must always be kept free from weeds.

CULTURE UNDER GLASS.

The cultivation of the plant under glass is more difficult, especially in the case of very early forced bulbs. A very successful method is as follows: Pot the bulbs as they are required for forcing into 8-inch pots. Plunge the pots outside in soil, covering the tops of the receptacles to a depth of 3 inches, and allow the plants to bloom and occupy these quarters for one year, treating them in every respect as though they were planted out in a border. Lift the pots and place them in a glasshouse during the late autumn, and feed judiciously during the whole time of growth. The plunging of the plants outside for a period of one year allows the bulbs to become thoroughly established, and the feeding during their growth under glass compensates for the exhaustion of the plant food in the soil. This soil-exhaustion is not a question of primary importance, as the bulbs will have stoted up the greater part of it in their scale-leaves, and this will furnish the energy required to carry them through the second year. There is no doubt but that *Lilium candidum* can be successfully grown in England, and the bulk of the several thousand pounds sterling annually spent on imported bulbs and flowers diverted to our own market growers. *E.C.*

PLANT NOTES.

RUSCUS RACEMOSUS.

THE Alexandrian Laurel is an admirable evergreen plant for mid-winter effect in the garden. It is a green, Bamboo-like plant growing from 4 to 5 feet in height, and succeeds well in a spot that is partially shaded. The wand-like shoots are thickly clothed with small "leaves," and at a distance the plant much resembles a Bamboo. It should be planted in a well-drained soil of a heavy nature, with which has been incorporated some leaf soil and manure.

RUSCUS ACULEATUS

is a suitable plant for covering bare patches under the shade of dense trees. It is a sturdy prickly evergreen, its common name being the Butcher's Broom. In some seasons it develops large red berries, and is then an extremely pretty shrub. This plant is often confused with *Colletia cruciata* (Bictonense), sometimes called the Anchor plant, on account of the woody branches and spines resembling small anchors. It forms a bush 5 to 7 feet in height, and in spring and summer bears a large number of tiny, white fragrant flowers. *W. A. Cook.*

[*C. cruciata* is, as has been shown in our columns, only a form of *C. spinosa*. Both forms have been seen on the same bush. See *Gardeners' Chronicle* Feb. 23, 1878, p. 243, fig. 43. *Ed.*]

PLANT PORTRAITS.

CYMBIDIUM INSIGNE (Rolfe), C. Sanderi, Hort. Annam.—Flowers white streaked and spotted with lilac.—*Revue de l'Horticulture Belge*, February 16.

BEGONIA INCOMPARABILIS x.—One of the hybrids from *B. socotrana* and a tuberous variety. Flowers orange-red.—*Revue de l'Horticulture Belge*, February 15.

TREES AND SHRUBS IN SCOTTISH GARDENS.*

EVER since the middle decades of the last century—the days of the famous Oregon Association and of the collectors W. Lobb and Jeffrey—the gardens of Scotland, and more especially those of Perthshire, have been noted for their collections of Conifers. Certain types of coniferous plants, especially those of West American origin, seem to find there conditions more congenial to them than almost any other part of the British Isles or even of Europe affords. No single garden or locality, I believe, will ever be found to suit all Conifers. Irrespective of hardiness, their requirements are too varied for that. But a climate with no great extremes of heat or cold, with abundant moisture, and one never subject to the long intense droughts such as are common in the Thames Valley, induces the luxuriant growth of a larger proportion of Firs and Spruces than any other. Such a climate a considerable portion of Scotland affords.

It is not only Conifers, however, that find such congenial conditions there. The extensive seaboard of the country, the deep inlets of a sea warmed by the Gulf Stream and the large extent of mountain, all tend to make the valleys and plains of the western side of Scotland peculiarly adapted for a vegetation which prefers moisture and an equable temperature rather than heat and sunlight. The plants of Chili, of New Zealand, of certain parts of Japan and the Himalaya, and of the upland valleys of Northern California are of this type. We consequently find, what may at first seem a curious anomaly, that many plants are thriving in Ross-shire which would not survive the winter in some of the wine-growing districts of France.

A visit, therefore, to a representative group of gardens in Scotland promised to be full of interest and instruction. With the aid of the Director and others acquainted with Scottish gardens, a list of fifteen private places was made, and these I visited during the month of July last.

I also visited the two chief botanic gardens of Scotland—those of Edinburgh and Glasgow. The foundations of an interesting and representative arboretum are being laid in Edinburgh by Prof. Bayley Balfour, but the exposed position and the climatic conditions are, I believe, adverse to luxuriant tree-growth. A large proportion, at any rate, of the trees are as yet in a comparatively juvenile state. The collection of rare shrubs, however, is of great richness, especially those belonging to the Heath family and such genera as *Erica*, *Bryanthus*, *Enkianthus*, and *Rhododendron*. The great rock garden, which is being further enlarged is, more than ever, a feature of peculiar interest.

In Glasgow the atmospheric conditions in the Botanic Gardens and inner parks could scarcely be worse. Conifers can hardly be grown at all, and even such a tree as the Horse Chestnut is so strangely stunted as to be scarcely recognisable. The Glasgow Corporation, fortunately, under the guidance of Mr. Whitton, pursues a vigorous and enlightened policy in relation to its parks and gardens, and the number of these open spaces in the outer ring has greatly increased in recent years. The conditions here are more favourable, and the indoor gardening in some of these newer parks is particularly good, especially as regards Orchids and greenhouse plants. I do not, however, propose to discuss the gardens either at Glasgow or Edinburgh. My object is rather to draw up a few notes on the country places I visited where the cultivation of trees and shrubs is not hampered by adverse conditions. And there I did, indeed, find certain classes of trees, sometimes restricted, perhaps, in the number of species, but represented by such a number of individuals and in such magnificent size and vigour as probably no other part of the British Isles can show.

MURTHLY CASTLE.

To Conifer-lovers in the British Islands Murthly has for many years been a place of extraordinary interest, and it is likely, I think, to long remain their Mecca. Remarkable as Scotland is for its Conifers, in no other place, so far as I have seen or heard, do they exist in

quite such magnificent profusion combined with such size, health and vigour. The grounds are situated about 2½ miles out of Dunkeld, on the beautiful slopes of Tayside, and contain about 6 miles of grass walks and avenues mostly bordered with splendid Conifers. There is a very extensive collection of species and varieties, but the dominating tree of Murthly is the Douglas Fir. There are numerous specimens ranging from 80 to over 100 feet high, some of them with trunks more than 10 feet in girth. They are of many shades of colour, ranging from the glaucous green of the Colorado type to the ordinary soft, more grass-like hues. Where they have been planted sufficiently near together to simulate forest conditions they have made magnificent straight, clean trunks of timber. A high opinion is held at Murthly of the durability and value of this timber. I was informed by Mr. Laurie, the gardener, that a gatepost, now in use for 15 years, was still in good condition. Planted singly, with room for lateral development, the fine contour and immense plume-like branches render this tree one of the most ornamental of all Conifers.

Next to the Douglas Firs the most noteworthy of the bigger trees are *Tsuga Mertensiana* (the *Abies Albertiana* of Scottish gardens), *Abies grandis*, *A. nobilis*, and *Picea sitchensis*. *Tsuga Mertensiana*, one of which I made out to be 85 feet high, with its tall, tapering, well-formed trunk, is one of the most beautiful of Conifers, and presents a remarkable difference in habit from its East American ally—*T. canadensis*—of which there is also a fine example 69 feet high, but with a big, rounded, bushy head and a short trunk 8 feet 6 inches in girth. *Abies grandis*, one specimen of which girths 8 feet, grows very quickly here; trees about 20 years old are now 54 feet high. *Abies nobilis*, planted in great numbers, is one of the features of Murthly; the intense glaucous hue of its younger branches and the great crops of cones—large, stiffly upright, and purple—which some trees bear near the top, make it one of the most conspicuous. One specimen I measured was 80 feet high and 7 feet 10 inches in girth. Of *Picea sitchensis* (known often as *Abies Menziesii*) one was 12 feet in girth and, approximately, 100 feet high.

Pinus monticola, of which so high an opinion used to be held at Murthly, and of which numerous excellent specimens used to grow there, has, in many cases, had to be destroyed on account of the attacks of a destructive pine-rust (*Peridermium* sp.). There is one specimen, however, which, although not quite so fine as the tree at Scone, must still be one of the finest in the country; it is 91 feet high and 6 feet 7 inches in girth.

The glaucous form of *Tsuga Pattoniana*, generally known in gardens as *T. Hookeriana*, is at Murthly the most beautiful of the purely ornamental Conifers. Till one sees it as it is here one can form no adequate idea of its merit. There is one specimen, a pendulous variety, which is the most beautiful Conifer I have seen. It is 54 feet high, the trunk just over 4 feet in girth, and its dense, gracefully pendent, plumose branches are of a silvery glaucous hue. In the sunlight, and in contrast with darker-leaved things around, it made a singularly attractive picture. It was interesting to note that seedlings raised from this pendulous variety have turned out to be true *T. Hookeriana*; they have not inherited the pendulous character of the parent tree, nor have they reverted in the least towards *T. Pattoniana*, of which species, as I have already intimated, *T. Hookeriana* is considered to be merely a glaucous variety. A fine tree of the ordinary *T. Hookeriana* has a trunk of 6 feet 2 inches in girth.

Sequoia gigantea (Wellingtonia), planted in 1857, is now about 90 feet high and 12 feet 2 inches in girth. *Picea ajanensis*, the most beautiful of Japanese Conifers, was 33 feet high, and *P. orientalis* 60 feet high. *Abies Veitchii*, disappointing at present as an ornamental tree on account of its thin habit, was 31 feet high.

Among rarer things were *Juniperus recurva*, the striking Himalayan species, 30 feet high and very well furnished; *Cryptomeria japonica* var. *spiralis*, not remarkable for size but showing the spiral arrangement of the branches particularly well; *Abies sachalinensis*, a very uncommon species, 16 feet high, but here, as

elsewhere, not quite satisfactory; *Picea Omorica*, the Servian Spruce, and one of the most promising of recent introductions, bearing cones—the first I have heard of in Britain. [We have specimens from Messrs. Paul, of Cheshunt.—Ed.] There was also a healthy young plant of *Pinus pentaphylla*, 4½ feet high; this species is a native of Japan and allied to *P. parviflora*, and the Murthly specimen is one of the very few in the country. In a nursery bed was a healthy batch of about 600 seedlings of *Larix occidentalis*. Some interest is being taken just now in this Larch, a native of Western North America, as a possible substitute for the common Larch. The species is uncommon, and the best trees in the country are probably those in the pinetum at Kew; they are 25 to 30 feet high and bear cones most seasons.

Murthly has some notable Yews. Some of them are between 400 and 500 years old, and have now huge spreading heads. One has a trunk 10 feet 10 inches in circumference at 3 feet from the ground. There is also a huge specimen of the Sweet Chestnut rivaling in bulk the enormous trees at Studley Royal, in Yorkshire. At 5 feet from the ground the trunk measures 24 feet in circumference, and near the ground it is 32 feet; it has, moreover, the remarkable spiral arrangement of the trunk fissures that is occasionally seen in this tree. A specimen at Kew has this character very well marked.

SCONE PALACE.

The long and intimate connection of Scone with the history of Scotland and of the Scottish kings imparts a charm to the place which ancient associations always give. This charm, however, is not always felt so keenly as it is at Scone where thick woods, fine old trees, and spacious lawns are admirably in consort with its romantic history. One of the striking things about Scone, indeed, is the rich and varied character of the woods surrounding the Palace. Mixed with the ordinary deciduous trees of the country, of which there are magnificent old specimens, are numerous fine examples of Douglas Fir, Silver Fir, and other Conifers which give a warm and luxuriant effect. Besides this there is, to horticulturists, the additional although minor interest of its being associated with the early years of David Douglas—one of the first and most famous of plant-collectors. He was born at the village of Scone in 1799 and received his first training as a gardener in the Palace gardens. A notable tree in the grounds is a specimen of Douglas Fir which was one of the original trees introduced by him in 1827 and planted on its present site in 1834. It is now 10 feet 2 inches in girth and only 1 or 2 feet short of 100 feet high.

The collection of Conifers is grown on a piece of ground specially set apart for them. They are planted on well-kept lawns in straight lines, with abundant space for the development of each. The health of the trees is excellent and the general effect imposing and not ill-suited to the formal character of the trees. Perhaps the most notable tree in regard to size in the pinetum at Scone is *Pinus monticola*. This tree in 1891 was 71 feet high; I made it to be now 93 feet high, so that in 15 years it has grown 22 feet; its girth at 4 feet was 7 feet 11 inches. I imagine this to be the finest specimen in Britain. Other fine Pines are *P. ponderosa*, 70 feet high and 7 feet 11 inches girth, and *P. Cembra*, 51 feet high. Of the Silver Firs *Abies Nordmanniana* was 66 feet high and 5 feet 11 inches girth; *A. Pinsapo*, 51 feet high; *A. Lowiana* [concolor] 54 feet high. There was also a beautifully coloured *A. concolor* var. *violacea*, 27 feet high. Of more than ordinary interest to me was a small but healthy young tree of *Abies Mariesii*; this species is exceedingly rare, and the specimen at Scone was the only one I saw in Scotland. The Irish Juniper (*Juniperus communis* var. *fastigiata*) made a column 20 feet high, and a specimen of the common Savin was 10 feet high and covered a space 30 feet in diameter.

Near the Palace are some immense specimens of common trees. A Sycamore (*Acer Pseudo-platanus*) said to have been planted by Mary, Queen of Scots, is still alive but somewhat of a wreck; its trunk, roughly, is about 6 feet in diameter. A gigantic *Populus deltoidea*, the North American "Cottonwood," is 15 feet in girth of trunk.

*Contributed to the *Kew Bulletin of Miscellaneous Information* by Mr. W. J. Bean.

KINFAUNS CASTLE.

The castle of Kinfauns, built on a historic site, occupies a delightful position a few miles out of Perth. It is somewhat elevated above the valley of the River Tay, and behind it rises a magnificent amphitheatre of hills. The gardening here, both indoor and outdoor, is very good, the greenhouses containing for their size a better collection of well-grown plants than I saw elsewhere. The garden is a delightful spot, especially above the house, where it occupies a valley with sloping lawns running down to a brook in the middle and dotted with fine old trees. Conifers are well grown and vigorous, but not many are exceptional in size as these trees go in Perthshire. *Pyrus rotundifolia*, one of the White Beam trees native of Britain but now rare in a wild state, I found here 60 feet high, its trunk 7 feet in circumference. *Quercus Turneri* was 45 feet high—loftier than I have noticed elsewhere, and a specimen of the variegated common Oak was exceptionally well coloured. A fine Sycamore over 100 feet high and a Canadian Hemlock Spruce are also features of the place.

LENY.

Situated about one mile from Callander, and not far from the Trossachs, Leny occupies a position of great natural beauty. To botanists it is a place of more than ordinary interest in being the home of one of the fathers of Indian botany—Francis Buchanan Hamilton (1762-1829). He lived at Leny after he retired from the superintendentship of the Botanic Gardens at Calcutta in 1816, and died there 13 years later. Some of the present walks about the grounds were planned and made by him. Leny now belongs to his grandson, Mr. Hamilton Buchanan, chief of the clan Buchanan.

The principal feature of the grounds at Leny is the "glen." This is a picturesque gorge worn out of the face of a steep hill behind the house, down which a burn pursues a rugged and tortuous course. The sides of the glen are in places so precipitous as to necessitate the crossing and recrossing of the stream several times. Along its banks have been planted numerous beautiful trees and shrubs now in luxuriant growth. Perhaps the most noteworthy of these are two Himalayan Rhododendrons—*R. barbatum* and *R. Thomsoni*—both of which are now 25 feet high. From their immense size, it is not improbable that they were raised at Leny from seeds sent to Francis Hamilton about 1819 by Wallich, his successor at the Calcutta Botanic Garden. If so, they must be the oldest in the kingdom. Among other things of interest are fine specimens of Canadian Hemlock Spruce—*Tsuga canadensis*—one of which has a trunk 7 feet 2 inches in girth. Another good specimen is growing most picturesquely on the edge of the gorge, whose precipitous side it overhangs, evidence of how much the climate favours the growth of such trees, for its roots appear to be embedded mainly in the rock. *Tsuga Mertensiana*, the common Silver Fir and Douglas Fir, are represented by fine healthy specimens, although not so large as one sees in other parts of Perthshire. Here also is growing what I think is the finest specimen I have seen of the cut-leaved Beech—*Fagus sylvatica* var. *heterophylla*. It has a trunk just over 7 feet in girth and it is 70 feet high.

(To be continued.)

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

The fernery.—Many of the plants in this house are showing signs of growth, therefore re-potting and top-dressing may now be taken in hand. The species of *Nephrolepis* are amongst the earliest, and are very useful Ferns for many purposes, some of the varieties making especially good "basket" plants, being useful also for planting in cork pockets on walls. The old *N. exaltata* thrives almost anywhere, and some of the new varieties are very beautiful, as *N. e. Todeoides*, *N. e. elegantissima*, *N. e. Whitmani*, and *N. e. Piersonii*. Many of the forms of *Nephrolepis* are strong growers, and require liberal treatment in the shape of feeding, when the pots are filled with roots, also plenty of

water. Ferns cannot possibly remain healthy if neglected in this respect, or if kept in a dry atmosphere. A good many Ferns, usually treated to a stove temperature, might be much healthier, if, after growth was made, they were put under cooler conditions. In potting Ferns, use good, rough, turfy loam and peat, with plenty of rubble, crocks or charcoal, and sufficient sand to keep the soil porous. Pot very firmly.

Any plants that are in bad condition should be washed out and divided, potting the roots first into small pots, and re-potting them as required through the season. If any tree Ferns are in an unhealthy state at the roots, the old ball of roots may be chopped off completely, close to the trunk, the latter then being potted up in some rough compost as above, and put into a warmer house for a time, where they will quickly recover and start to make a healthy growth. Frequent and copious syringings are necessary for all tree Ferns during their season of growth. Any rough Ferns that are not required for pots may be divided and planted under, or by the edges of the stages in plant-houses. These, with Begonias of the "Rex" type, and various *Tradescantias* and *Selaginellas* will furnish, in such positions, a quantity of "greenery" for cutting if required. Walls of conservatories or ferneries, furnished with cork pockets or wired frames, may be renewed or filled with a variety of Ferns of a drooping habit; *Woodwardia radicans* succeeds excellently if given sufficient space to develop its beautiful fronds, and many other Ferns will occur to the intending planter, all tending to give an attractive and natural appearance to such houses. *Platyceriums* stand out boldly, and, if well grown, usually attract considerable attention from visitors. After Ferns have been re-potted, an atmospheric temperature of 60° should be afforded them, admitting a little air on sunny days as the temperature rises, and keeping plenty of moisture about and under the stages, &c. As the sun-heat increases, shading must be given careful attention; the young fronds, being very tender, quickly become yellow if exposed to too much direct sunlight.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Allos, Clackmannanshire.

The early vinery, in which the Grapes have been thinned for the first time, should have an atmospheric temperature at night of 65°, rising to 75° by day and to 85° if caused by sun heat. Admit a little air by the top ventilators when the weather is favourable, and close the house early in the afternoon. Damp the paths and borders with tepid water daily to maintain much moisture in the atmosphere. Guard against the hot water pipes becoming over-heated, and prevent also draughts of cold, especially frosty air, which would soon cause a check to growth and favour red spider, for the eradication of which pest the syringe would have to be used. Regulate and tie in lateral shoots according to the light and space at command. Do not overcrowd the foliage. Rub out all young growths, pinching sub-laterals at the first leaf. Commence to thin the berries for the second time. Cut out all stoneless berries, and regulate the bunches, which may have been overlooked at the first thinning, by tying up some of the shoulders with small strips of matting. Remove loose, straggly bunches and regulate the crop according to the strength and vigour of the vine. Apply the soil tester to the inside border, and if the soil is found to be dry remove the mulching to one side, and apply to the surface of the border a sprinkling of fine grade vine manure at the rate of 1 lb. to 2 square yards. Next apply a good watering with water at the temperature of 70° and replace the mulching. This watering in general will be sufficient until the berries commence to colour.

Early Figs in pots, which are plunged in a bottom heat of 75°, require an atmospheric temperature of 55° to 60°. When the plants are breaking into growth, increase the atmospheric moisture by damping the paths three or four times daily with tepid water. As the days lengthen increase the heat and give the plants a plentiful supply of tepid water at their roots. Admit air through the top ventilators during favourable weather and close the house early in the afternoon. Permanent Fig trees planted out in borders which have been concreted and pre-

pared for them should be kept cool until the buds swell.

Cucumbers.—Plants that have been in pots during the winter will now be starting into fresh growth. An atmospheric temperature of 65° to 75° by day will be suitable. Damp the paths to keep the atmosphere humid, and syringe the plants if there is any appearance of red spider, &c. Plants raised from seeds sown last month will now be ready to pot on. Place the compost in the pit to become warmed before using it in potting operations. Pots 6 inches in diameter are best. After potting plunge the pots in a bottom heat of 75°, where they may remain until the plants are ready for putting into the border.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Labels and labelling.—The labelling of plants is one of those matters to which every gardener, whether in the "trade" or in private or public service, requires to give more or less attention. In nurseries and private gardens the object of labelling is done merely for the purposes of identification, and such being the case it hardly signifies whether plants are indicated by their proper botanical names or by a system of numbers used as equivalents for these names. On the contrary, in public parks the object is more for educational purposes; hence it is very necessary to furnish, not only the correct scientific name of the plant, but also, where possible, such further information as can readily be presented on a label of ordinary size. There is ample scope for this kind of work in most parks without exactly turning them into botanical gardens. Trees and shrubs, herbaceous plants, and florists' flowers might all, under certain circumstances, be labelled with much advantage to the public. It is surprising and no less gratifying to find the great number of visitors frequenting our parks in these days who take an intelligent interest in all kinds of plants, a circumstance which, taken in conjunction with the fact that the Education Board is doing everything possible to encourage Nature-study among school children, provides a very good reason for extending the practice of labelling plants in public parks. In a town where a park or a portion of one is set aside as a botanical garden, there is hardly the same necessity for extensive labelling in the remaining parks as there would be where no such institution exists.

Kinds of label.—All kinds of materials such as wood, slate, zinc, copper, lead, and gun-metal are used for label-making, and all are more or less useful for the purpose, but the choice of the material and the kind of label employed is as often as not decided simply upon the question of cost. In establishments where a great deal of labelling is done the stamping process is usually adopted, when either rubber stamps are used for printing upon painted labels, or steel stamps upon strips of sheet lead. The latter kind of label, which I first saw used at Kew about a dozen years ago, is difficult to beat for cheapness and general utility, and is the kind I would recommend for use in a public garden. It has been in use from time immemorial.

For trees and shrubs we use a lead label 3½ inches by 3 inches stamped with ½ inch letters filled in with white enamel. In addition to the botanical name, the common one—when known—and an indication of the country to which the plant belongs are given. These labels, attached to a small iron rod, are placed in front of trees and shrubs in such a way that anyone desirous of obtaining their names can easily do so. The labels used for herbaceous plants are 3½ inches by 2 inches, and simply record the botanical name, whilst with florists' flowers only the common name is supplied.

A label-printer.—Labelling is best left in the hands of one man, who should be held responsible for making and printing all labels. Such work is best done during wet weather or the winter time when outside work is at a standstill.

Standard for nomenclature.—As we consider it important in connection with the naming of plants to have a uniformity of nomenclature, we have adopted the *Kew Hand-lists* as our guide in that matter.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence Bart., Burtord, Surrey.

Platyclinis.—This genus consists of a small number of species, but all are worth growing, and well bloomed plants are always much admired, especially such an example of *P. glumacea*, as is illustrated in the *Gardeners' Chronicle*, November 9, 1905. Experience has proved that the cool atmosphere of the intermediate house is most suitable for all of the species the whole year round, and when suspended well up to the roof glass in a moderately shady position, and if properly attended to as regards watering, &c., the plants grow well and produce flowers in profusion. *P. glumacea* and its variety *valida* are now producing numerous flowering racemes, and the plants should be liberally supplied with water at the root. *P. uncatata*, whose thread-like racemes are very similar to those of *P. filiformis*, has just gone out of bloom, and the plant should be kept fairly moist at the root until the small growths have attained to their full size. Although *P. filiformis* and *P. Cobbiana* are at rest, they should be kept moist by spraying the foliage overhead, which at the same time will check the increase of red-spider. Any of these plants may be re-potted immediately growth has begun, or as soon as possible after flowering. I find shallow pans are the best receptacles to grow them in, and they will thrive luxuriantly in a thin compost consisting of good fibrous peat, leaf soil, and sphagnum-moss, intermixed with a moderate quantity of small crocks.

Cymbidiums.—Such *Cymbidiums* as *C. Lowianum*, *C. L. concolor*, *C. Lowie-eburneum*, and the reverse cross *C. eburneo-Lowianum*, which are sending up flower spikes, should have abundant supplies of water at the root until the flowers are all open, after which time the compost should be kept just moist. Any plants of *C. Mastersii*, *C. elegans*, *C. affine*, *C. Tracyanum*, *C. Winnianum*, *C. Wilsonii*, *C. giganteum*, *C. Schröderæ*, *C. chloranthum*, *C. madidum*, &c., that require re-potting, should be attended to at once. Being strong rooting plants they require a liberal amount of pot room with good drainage. Afford them a mixture of two-thirds loam, one-third peat, with the addition of small crocks and coarse silver sand. When re-potting, leave a good space below the rim of the pot to hold water, of which these plants require a plentiful supply when well rooted, and all through the growing season. After re-potting water should be afforded in small quantities, gradually increasing the supply as each plant becomes re-established. All of these *Cymbidiums* grow well when elevated upon pots or suitable stands in a light position in the intermediate house, and if their immediate surroundings are kept always thoroughly moist, insect pests rarely infest them, with the exception sometimes of a little brown scale, which is easily eradicated with the brush and sponge.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

Bedding Pelargoniums.—Cuttings rooted last autumn should now be potted singly or be planted in boxes. Pots should be used for preference, and these must be clean, or at planting time the roots will cling to the pots. Any water that may be necessary should be given on the day previous to potting. If reasonable care is exercised when watering, for a few weeks after the potting is done, no drainage material will be necessary in the pots save a few lumps of loam or some half-decayed leaf-mould. Place the plants in a warm house for a few weeks, and do not afford water until it is really needed; occasional dampings with the syringe on bright days will prevent flagging.

Standard Fuchsias, Heliotropes, &c., should now be trimmed, pruned, and placed in a warm house. As they were potted when taken up from the flower beds, no re-potting will be necessary now, but it will be wise to see that in moving, the soil has not become loosened. Frequent syringings will help the plants to "break" freely and evenly, and as growth advances due attention should be paid to pinching the shoots, so as to ensure the development of well-balanced plants. In these gardens, where often severe autumnal gales prevail, I find old plants unsatisfactory, as the wind often removes large

branches. I insert cuttings towards the end of July, and as soon as they are rooted pot them singly into 3-inch pots, and keep them steadily growing in an intermediate house throughout the winter, pinching the shoots as is necessary. These plants are now in 32-size pots, and will shortly be transferred to 9 and 10-inch pots, when they will be treated similarly to old standards. Such plants withstand rough winds better, and are rather less trouble than old plants which have been used for the purpose previously.

Calceolarias and Violas.—The bedding varieties of these plants in frames, and which were recently pinched, should now be transplanted, using a soil containing a goodly proportion of leaf-soil to ensure their lifting with a good ball of roots when they are finally placed in their flowering quarters. Choose mild weather for the transplanting, keep the frames shut for a few days and cover them with mats at night. After they have recovered, ventilate the frames freely, whenever possible, to promote sturdy growth.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

French Beans.—Further sowings of seeds in pots should still be made, but as the outside temperature is becoming higher, these may now be placed in a structure where there is less fire-heat employed. Closer attention will now be necessary to keep the plants free from the attack of thrip and red spider. Sowings might also be made now in boxes for raising plants to plant out in a cool house, or to succeed a crop of Potatoes in a frame. Syon House Prolific and Fulmer's Forcing are two good varieties for these purposes.

Herbs.—In cases where it is considered necessary to replant the beds of the perennial herbs such as Sage, Thyme, Tarragon, Chives, &c., the work should now be undertaken, taking this opportunity to divide the roots. Seeds of such herbs as Basil, Marjoram, &c., which are generally grown, and succeed very well as annuals, should now be sown.

Cabbages.—The Cabbage bed should be thoroughly examined, removing all decayed leaves which, after the severe trial from which they are just emerging, will in many cases be considerable. If a moderate dressing of nitrate of soda can be applied at the present time and well worked into the ground by the use of the hoe, a great improvement in the plants will soon be discernible.

Cropping.—Although the end of February is now near, the weather, at the time of writing, renders the sowing of seeds out of doors impossible, for even on very light soils the ground is much too wet to allow of its being worked. If sowings of Peas and Beans were made in pots and boxes as previously advised, they will in due course prevent a blank that must otherwise have occurred. At the same time, if a piece of ground in a favoured position, or a sheltered border can be found in anything like a favourable condition for working, seeds of either or both of the above-mentioned crops, also of Round Spinach, should be sown.

Tomatoes.—Seeds for raising plants to be grown out of doors should now be sown, and another sowing may be made in about ten days' time. As soon as the seedlings are large enough they should be potted into 60-sized (3-inch) pots. The plants will need to be in the best condition for planting at the foot of walls by the end of May, and in the open in the early part of June. By that time they should be thoroughly established in 6-inch pots, and be perfectly "hardened." Last year was an exceptionally good season for Tomatoes, and proved that several varieties noted for their prolific qualities indoors, such as Sunrise, &c., were equally free in cropping under outdoor culture.

Tillage.—If not entirely, the greater part of the winter's digging, wheeling, &c., will now be finished, at any rate, in the most prominent parts of the garden, and as the work proceeds, all edgings, whether they consist of tiles, box, &c., should now be given attention. Faulty places and bare patches should be renovated, and all walks in the vicinity that require fresh gravel, or other material to make them good, should be put into good condition; thus giving a fresh appearance to the garden, and a final finish to the rougher work of winter.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Plums.—The pruning and the training of these trees should be completed forthwith. Some varieties of Plums succeed remarkably well grown as standard trees, notably the old Victoria, Jefferson, Pond's Seedling, the Czar, and Denniston's Superb. Bush or pyramid-trained trees also crop freely in favourable seasons providing the centres of the trees are sufficiently pruned to admit air and light and the roots are kept within proper bounds. The true Damsion is not much grown in this county, but it is a desirable fruit. These trees are best grown as standards in a not over-rich soil, as they make growth at the expense of the fruit buds unless somewhat starved. Trees that fruit well should be afforded an annual top-dressing of some manurial material after the prunings have been removed, and few things are better for the purpose than a dressing of wood-ashes, old plaster, or mortar rubble. Barren trees that are growing excessively should have their roots pruned or be transplanted, and then be given a dressing of old lime rubbish, working it well amongst the roots.

Apples.—Bush and pyramid Apple trees are the most profitable. Encourage the roots to grow near the surface of the soil by applying an annual top-dressing of good loam or a mulching of manure, after the pruning is completed, which it should be by the end of this month. Good fruits are produced by horizontally-trained trees, and these are suitable for planting along the margins of walks, but the hard pruning required to keep them within limits is not favourable for an annual average crop of fruits. Bush trees should be allotted a quarter to themselves, and no plants requiring deep cultivation should be allowed near the roots of the trees. Use, however, may be made of the land between the rows when the trees are quite young by planting shallow rooting subjects, such as Violets, Lettuces, or even Gooseberries and Currants.

THE APIARY.

By CHLOPIS.

Glossary of common bee terms.—*Artificial swarm*: When a colony has been made by the division of a stock.

Balling: When a new queen is added to a stock the bees cluster over and round her in their attempt to sting her; they are said "to ball" her.

Bee-bread is another name for pollen.

Bee-escape is an appliance by means of which bees may be got out of supers, or even buildings and trees.

Bee-space is a passage wide enough for a bee to pass and one calculated to prevent them building brace combs.

Brood is a term applied to the larvæ of bees, and not, as some imagine, bees after they have emerged from the cells.

Candied honey is honey which has granulated, and may be liquefied by applying heat.

Capped brood consists of the larvæ covered with a thin covering of wax and pollen.

Cappings are the thin coverings of wax which mark the completion of honey stored, so far as each cell is concerned. When they are cut off before extracting honey, they should be stored in a tin vessel with a covering, and then melted later.

Clustering.—When bees swarm or leave a hive they usually settle in some convenient (at least, so far as the bees are concerned) place, and resemble a bunch of Grapes, and they are then said "to cluster."

Comb foundations are thin sheets of wax of varying thickness, according to the purpose for which they are needed, and impressed by machinery with the bases of cells.

Wax is a secretion of the bees, and is formed by them into small scales, which are passed out by them through the eight wax pockets, situated on the under side of the abdomen.

Wedding flight is the flight of a young virgin queen for the purpose of becoming fertilised by the drone. It takes place only once in her lifetime.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR MARCH.

SATURDAY, MARCH 2—

Soc. Franç. d'Hort. de Londres meet.
German Gard. Soc. meet.

TUESDAY, MARCH 5—

Roy. Hort. Soc. Coms. meet.
Scottish Hort. Assoc. meet.
Nat. Amat. Gard. Assoc. meet.

THURSDAY, MARCH 7—

Linnean Soc. meet.
Manchester & North of England Orchid Soc. meet.

MONDAY, MARCH 11—

Ann. meet. Unit. Hort. Ben. & Prov. Soc. at R.H. Hall, Westminster.

WEDNESDAY, MARCH 13—

Winter Carnation Soc. Show at Botanic Gardens, Regent's Park.
International Hort. Exhib., Nice, opens.

SATURDAY, MARCH 16—German Gard. Soc. meet.

TUESDAY, MARCH 19—

Roy. Hort. Soc. Coms. meet.
British Gard. Assoc. Ex. Council meet.

THURSDAY, MARCH 21—

Linnean Soc. meet.
Torquay Spring Fl. Show.
Manchester & North of England Orchid Soc. meet.

WEDNESDAY, MARCH 27—Roy. Bot. Soc. Exhibition

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—40°1'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, February 20 (6 P.M.): Max. 51°; Min. 37°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 21 (10 A.M.): Bar., 29°4'; Temp., 39°; Weather—Cold winds and slight snow.

PROVINCES.—Wednesday, February 20 (6 P.M.): Max. 46° Bury St. Edmunds; Min. 35°, Scotland N.E.

SALES FOR THE ENSUING WEEK.

MONDAY—

Roses, Azaleas, Hardy Plants and Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

WEDNESDAY—

Liliums, Perennials, Border Plants, Hardy Bulbs, Azaleas, Rhododendrons, Palms, &c., at 12.
4,000 Roses, also Fruit Trees, at 1.30 and 4, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Plants, Roses, and Lilies, at Steven's Rooms, King Street, Covent Garden, W.C., at 12.30 p.m.

FRIDAY—

Hardy Border Plants, Liliums and other Bulbs, Roses, Azaleas, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

Manures and their Use.

The advisability of adding artificially to the supply of plant-food in the soil, by any process of manuring, is to be determined by the ultimate profit to be derived from it. There are few soils that may not be made more productive by the addition of manure in some form or other, and there can be little doubt that most soils demand manuring in order that profitable returns may be realised from them. Whether it will pay to manure with commercial fertilisers is a question for each gardener to determine for himself, according to the particular circumstances in which he is placed.

In the celebrated experiments which have been carried out at Rothamsted, Herts., Wheat has been grown in one portion of a field for 62 years in succession on the same land, without an ounce of manure. In another field Barley has been similarly grown for 54 years in succession, and in yet another field Mangel Wurzel has been grown for 32 years without manure. In some experiments on permanent grass-land, two plots of the land have been left without manure of any kind for 50 years, and yet in the average of seasons they yield 1 ton of Hay per acre. Facts like these, which might be greatly multiplied, serve to show the vast resources of ordinary fertile soils in plant-food, and the inexhaustible supply of gaseous food from the atmosphere aided by the sunlight acting on the green matter of the plant.

In recent years the word exhaustion, when used in connection with the soil, has been given an entirely different meaning to that originally given to it. Now, exhausted soils are understood to be those which no longer produce crops at a profit. The object of manuring is to recoup the soil for waste of all sorts—waste from excessive cropping; waste from drainage due to excessive waterings, either from heavy rain-falls or artificial supplies; waste from the incessant chemical and other changes going on in the soil. To increase the store of plant-food in naturally poor soils, and at the same time to compel them to yield profitable crops, is the problem set before every practical gardener. Fertile soils are rich in the elements of plant-food, and these foods are, through the agency and work of the soil germs or bacteria, being constantly changed and adapted for the use of growing crops.

There is no doubt that many soils can be made to produce crops up to a certain standard, year after year, without the aid of manuring. This is demonstrated in the experiments at Rothamsted, to which we have already referred. This standard of production, however, will rarely meet the requirements of the modern gardener. He must compel the land to do more than it is naturally able to do. To accomplish this he must add to the resources of his soil by applying manure.

Essential conditions for a plentiful supply of vigorous germ-life are a good store of humus or vegetable matter, a well aerated and a well drained and deeply cultivated soil. One of the important objects sought in ploughing, digging, hoeing, and tillage operations generally is to put the soil in such condition that weathering from frost, air, and moisture will go on most rapidly. The crop that follows this cultivation gets the benefit of the provision thus made for it in part only. Do what we will, we shall not be able to utilise all the plant-food that has been prepared for plants in the course of each season's cropping. Some of the nitrogen in the form of ammonia gas escapes from the soil; the nitrates which have combined with lime to form nitrate of lime, and smaller amounts of potash and phosphoric acid, are carried into the soil beyond the reach of the plant rootlets, or are lost in the drainage water.

In a sense, then, cultivation may be said to be a source of waste to the soil, because it is the means of reducing the quantity of humus in the soil; this waste must be made

good by manures. In order, therefore, to keep up the fertility of a garden it is necessary to apply new quantities of nitrogen, either in the form of farmyard or stable manure, peat-moss litter, or vegetable refuse, in order that the store of humus may be replenished. Artificial fertilisers, while they will supply the requisite nitrogen, potash, or phosphoric acid for a crop, will not supply the humus. At the same time, the Rothamsted experiments indicate very clearly that chemical fertilisers applied to suit the wants of soil and crop are not necessarily a source of injury to the soil, but may, indeed, be a lasting benefit to it.

The profits growing out of the use of commercial manures are chiefly dependent upon the cost of the fertiliser and the price of the resultant crop. Like ploughing, digging, or draining, therefore, the use of purchased fertilisers is to be determined by practical economical considerations, and not by chemical or other theories concerning them. Artificial manures have an undoubted position in practical gardening in helping out and reinforcing the natural supply of stable dung, and, even where the home supply is ample, an addition to it of some concentrated manure may often be made of benefit in producing crops "out of season," or by giving some soluble plant-food in the requisite quantity, and at just the best moment to assist the needs of the plant.

Exactly what the soil requires, and how much in the way of artificial fertilisers, cannot be determined by a chemical analysis only. The gardener's special resource is actual trial of the different fertilisers combining the three elements of value in manures—nitrogen, potash, and phosphoric acid. The differences of soils, in respect to fertility, and the variable demands of the many crops in a garden, explain why no hard and fast rule can be laid down for manuring. The gardener who would know what his soil needs must resort to the same means he is accustomed to employ in learning the capacity of his garden in other respects: he must try by actual experiment on a small area of soil the effects of small dressings of sulphate of ammonia, nitrate of soda, kainit, bone-meal, superphosphate, and mixtures of these in measured quantities, and carefully note the results. The information thus obtained will be found of great practical value.

OUR SUPPLEMENTARY ILLUSTRATION is from a photograph of *Cordylina Banksii* in flower in the gardens of Dr. R. HAMILTON RAMSAY, Torquay. Although the species of *Cordylina* are largely used as sub-tropical bedding plants in summer time, they need, in most districts, the protection of a plant house in the winter. In a few favoured spots in our island, such as in Devon, at Torquay, the plants thrive in the open from year to year. An illustration of a seedling plant of *Cordylina indivisa* (vera), and of *Cordylina Banksii* growing in the gardens of Lord ANNESLEY, at Castletwellan, Co. Down, appeared in our issue for October 6, 1906, and is referred to in Dr. RAMSAY's note, who writes as follows: "I was much interested in the fine illustration of *Cordylina indivisa* (vera), grown at Castletwellan, and of *Cordylina Banksii* from the same gardens. I have two fine specimens of *Cordylina Banksii*, grown from cuttings which I obtained in 1890 and which I at once planted out in different parts of my open garden.



CORDYLINE BANKSII FLOWERING IN DR. HAMILTON RAMSAY'S GARDEN, TORQUAY.

Photo by Fred Kitto.

They flower in alternate years. The one of which I send the photograph flowered first in 1902, again in 1904, when the photograph was taken, and again last year. They are planted in sandy loam and leaf mould. The plant illustrated has branched into several stems close to the ground, and is 7 feet in height, with a circumference of 25 feet. The leaves are green with a golden midrib. The specimen has always been out-of-doors since it was first planted in 1890. The plant shows six heads of bloom in the illustration, but last year it had nine inflorescences. I have lately planted several New Zealand and Australian plants in my garden and they are all thriving. They include a lovely tree Fern, *Dicksonia antarctica*. The garden is lovely now (January 1), with Roman Hyacinths, Roses, of which I have still a few, and paper white Narcissus. Bamboos, eight varieties of Palms, including 12 splendid *Trachycarpus* and a lovely tree Fern are in spring-like beauty, and several varieties of *Abutilon* are in flower. *Cordylina Banksii* when in flower was a splendid sight."

ROYAL HORTICULTURAL SOCIETY.—Exhibitors are requested to notice that on Tuesday, March 5, only the smallest exhibits can be accepted on account of the large amount of fruit, &c., from South Africa. *A. Wilks, Secretary.*

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, February 25, 1907, when a paper will be read by Mr. AUBREY J. SPENCER (barrister-at-law), on "The Agricultural Holdings Act (1906)."

THE NATIONAL DAHLIA SOCIETY.—The annual report for the past year has been issued, together with the Schedule of Prizes to be competed for at the great Exhibition of Dahlias at the Crystal Palace on September 5 and 6. The financial statement shows a small balance on the right side, which would have been larger had the Crystal Palace Company fulfilled its obligations. A list of the certificates and other awards made during the year is given. The secretary is Mr. H. L. BROUSSON, Boyton, Foots Cray, Kent.

ORCHID EXHIBITION AT HAARLEM.—The fourth Orchid exhibition of the Dutch Orchidophile Club will be held in the great hall of the Vereeniging Society of Haarlem, from Friday, May 10, to Sunday, May 12, inclusive. The secretary is Jonkheer L. J. QUARLES VAN UFFORD, 8, Van de Spiegelstraat te 's-Gravenhage (The Hague), from whom further information may be obtained.

BELGIAN HORTICULTURISTS.—The *Tribune Horticole* gives a portrait and a sympathetic notice of the late director of the School of Horticulture at Vilvorde, and well known to many visitors to Belgium. A new square at Namur has been called after another Belgian friend, M. FERDINAND KEGELJAN, whose munificence is proverbial at Namur. Together with Messrs. CANNART D'HAMALE, MASSANGE, JEAN LINDEN, EDOUARD MORREN, LOUIS VAN HOUTTE, AMBROSE VERSCHAFFELT, EDWARD PYNART, COMTE DE KERCHOVE DE DENTERGHEM, M. KEGELJAN has rendered invaluable services to European horticulture.

THE EXPERT.—We hear of the advent of a new journal to be called *The Expert*. It is for collectors of treasures of every sort from fans to furniture, and including garden ornaments and sundials. The paper is to cost 3d. a week and to issue from 1, Albemarle Street, W.

JAMES BRAIK, whose death is announced in the American papers, was Assistant-Superintendent of the Buffalo City Parks. He was born in Scotland, and served in the 42nd Highlanders (Black Watch). Migrating to America he secured the respect of his associates for his upright character.

THE TWO HUNDREDTH ANNIVERSARY OF THE BIRTH OF LINNAEUS is to be held in May next at Upsala, when Mr. FRANK DARWIN will attend as a representative of the University of Cambridge.

A ROCK GARDEN.—A gigantic piece of artificial rockwork, certainly the highest in Great Britain and probably the highest in the world, is at present in course of construction at Dunfermline, Scotland, the birthplace of ANDREW CARNEGIE, the millionaire. It rises to a height of 100 feet above the stream in Pittencrieff Glen. JAMES BACKHOUSE & SON, Ltd., York, the well-known landscape gardeners and rockwork builders have been engaged upon it over two years, to the order of the managers of the Carnegie trust, who have a large sum at their disposal, the gift of Mr. CARNEGIE, for the improvement of Dunfermline and its surroundings. Large sums are spent by the trust annually in promoting flower shows, extending parks and gardens, &c. *American Florist.*

MONUMENT TO COUNT KERCHOVE DE DENTERGHEM.—It is proposed to erect the monument to the memory of this indefatigable horticulturist and cordial friend, at Ghent, in the square between St. Bavon, the rue de Limbourg and the Banque Nationale. The inauguration will take place at the next quinquennial exhibition, in April, 1908. The centenary of the foundation of the Société Royale d'Agriculture et de Botanique will be celebrated on this occasion. The very handsome manner in which the Ghent society offered its congratulations on the occasion of the centenary of the R.H.S. will not be forgotten. Donations towards the Kerchove memorial may be sent to Dr. MAXWELL MASTERS, 41, Wellington Street, Covent Garden.

OUR KITCHEN GARDEN, &c., by TOM JERROLD. —A second and enlarged edition of this little book is published by Messrs. CHATTO & WINDUS. The several vegetables are dealt with in alphabetical sequence, but we find no mention of Celeriac, or the so-called Chinese Artichokes (*Stachys*). The chief feature of the book consists in its numerous culinary directions. Too little attention is, as a rule, paid to this branch of domestic cookery in small establishments, where Cauliflowers boiled to a smash, and partially-mashed Turnips are the rule rather than the exception. We would suggest, however, that Horseradish for sauce should be pounded as well as grated, until the sauce is made as smooth as the cream itself; that the vinegar for pickling Onions should be boiled with the spice before the jars are filled with it when it cools, and that in nearly all cases Onions are very much better scalded before they are cooked in any form, so as to remove the coarse, acrid flavour nearly all contain.

ARBOR DAY.—We take the following extracts from a letter published in the *Times* from Mr. C. W. RADCLIFFE COOKE:—Arbor Day originated in Nebraska at the instance of the late Hon. J. STERLING MORTON, who was a member of the State Legislature; and, although ridiculed at first, grew so quickly into favour that through its instrumentality Nebraska, once known, from its barrenness and bleakness, as the Great American Desert, became so well afforested as to justify the Legislature in passing a resolution to the effect that thenceforward it should be styled the "Tree Planters' State." Mr. MORTON, who afterwards became Secretary of the United States Department of Agriculture, lived to see the institution he founded encouraged by the Government and adopted and regarded as a general holiday in 40 States and territories. To plant trees in commemoration of public events, distinguished men, or the visits of crowned heads is a custom that goes back to the earliest times in the recorded history of man; and Arbor Day is but an extension of

this custom. Thus, the institution was inaugurated in this country in the picturesque village of Eynsford, in Kent, mainly through the efforts of an energetic resident (Mr. Till) in the year of the Diamond Jubilee of Queen Victoria. In each succeeding year since 1897 Eynsford has had its Arbor Day celebration, in 1900 planting a row of trees in the village street to commemorate the defences of Ladysmith, Kimberley, and Mafeking. Although in some countries the observance of Arbor Day has conducted to afforestation on a great scale, in England, where, with trifling exceptions, all the land is privately owned, operations on Arbor Day must be mostly confined to the planting of trees in the streets of towns, in public parks, and by the road-sides. In order to enlarge the sphere of its influence it has been found essential in England, as, indeed, Mr. MORTON found to be the case in America, to rouse public sympathy and sentiment by making the occasion a public holiday, encouraging school children, as more likely than their elders to see the results of their labours, to take a principal part in the work of tree-planting, and enlivening the proceedings with processions, bands of music, patriotic songs, and social festivities. Conducted on this plan, it is found at Eynsford, and in other places which have followed the example set there, that the effect of the observance of Arbor Day extends beyond the mere occasion; that planting by private persons on their own land is stimulated; that even the school children are so taken with the subject that they will save up their pocket-money to buy a tree each or club together to buy one between them, and in after-life continue to take a keen interest in the preservation and welfare of the trees they have themselves planted. At the first observance of the institution in this country, at Eynsford, I and Sir GEORGE BIRNWOOD were privileged to assist in the formation of a new orchard by planting a tree of that noted Herefordshire cider Apple the Foxwhelp, and I have lately tasted a bottle of excellent cider made from the fruit of this very orchard; while, to show how after-generations may benefit from the tree-planting tastes of their ancestors, I have now on tap a hogshead of perry, as good of its kind as the cider, made last year from the fruit of Pear trees planted, as documents in my possession attest, in the reign of Queen Anne—giant trees whose gnarled trunks and spreading limbs are not the least attractive features of the landscape. The possibility through the instrumentality of Arbor Day of enlarging the area under fruit ought not to be lost sight of. In some parts of America the State pays to every one who plants and properly cultivates on not more than three acres of land so many rows of trees in the manner prescribed by law a certain sum per acre for the space of five years. Landowners in England often hesitate to supply fruit trees to their tenants on the ground that the latter are apt to neglect them after they are planted. Without wishing to decry the practice of offering prizes for the best collections of table fruit, I think it would be well if some of the prize money now awarded to monstrous Apples and Pears were given, after the American fashion, to the owners of the best planted and best kept orchards. The citizens of Hereford, the latest converts, if I may so style them, to the observance of Arbor Day, propose to beautify the approaches to their ancient city by the planting of avenues. They might, I think, go a step further, and through the influence and popularity of this institution stimulate the planting of fruit trees, for which no kinder soil exists, by private owners and occupiers, and so lead them to follow the "noble example" set in the 17th century, as old John Evelyn records in his *Pomona*, "by Lord Scudamore, of Holme Lacy, near Hereford, and other public-spirited gentlemen in those parts, whereby Herefordshire became in a manner but one entire orchard."

BOTHIES FOR YOUNG GARDENERS.—The following extract from the *Estate Magazine* has our entire sympathy, and is one of those matters which might advantageously be taken up by the British Gardeners' Association. "There are bothies of all kinds fixed in all sorts of places, and whereas in some establishments the comforts of young gardeners are amply catered for by providing them with comfortable and properly lighted and ventilated habitations to live in, the same unfortunately cannot be said about others. I know bothies which are little else than lean-to sheds situated on the north side of a wall and commanding a back-yard view over a coal-shoot or a rubbish heap. In other cases young gardeners are housed in cramped, stuffy dens over store houses, and in one place I know the bothy is next door to a sulphurous stoke-hole. In fact, it is not too much to say that some of the places in which young gardeners are expected to live are unfit for human habitation, and if they were anywhere else besides where they are, they would be condemned as being unsanitary. This is hardly as it should be, and it is a surprising thing in these days that young men can be got to live in such places. Young gardeners do not ask for luxuries, but when apartments are provided for them in lieu of wages, they should be sanitary and comfortable. It is not an exaggeration to say that in some private establishments in the country the horses in the stable are more comfortably housed than the young gardeners in the bothy."

THE ARBORETUM AT TERVUEREN.—This has been formed on land granted for the purpose by the King of the Belgians. It is designed to comprise representatives of the forest vegetation of the temperate zone. Over 200 species are cultivated, 90 being coniferous and 116 broad-leaved, deciduous species, the total number of specimens being about 6,000. Prof. BOMMER, a member of the staff of the Brussels Botanic Garden, has charge of the formation and maintenance of the Arboretum, and has published a descriptive list of the trees arranged first in geographical order and then according to their genera. It forms a useful catalogue, but it is to be regretted that more use was not made, in its compilation, of the report of the Conifer Conference of the Royal Horticultural Society, which is a veritable mine of information on these trees as cultivated in Europe.

DEATH OF A GOOD CULTIVATOR.—In the *Times* appears a notice of the death of Mr. WALTER STRICKLAND, at the age of 74, at his villa at Posilipo, Naples. He inherited the beautiful property upon which he lived and died from his father, and spent his life in cultivating the 22 acres of fruit farm which surround the mansion. By the judicious selection of vines and fruit trees from France and Germany, and by the use of the best modern methods, the property has been rendered the most prolific of any in the neighbourhood—so much so that Mr. STRICKLAND was never allowed to compete for any prize in local competitions on account of its acknowledged superiority. Its commanding site on the top of the point of Posilipo adds greatly to its charm. Mr. STRICKLAND leaves one son, Commander CHARLES STRICKLAND, R.N., now of his Majesty's ship "Implacable."

LETTER FROM KINGSTON, JAMAICA.—The following extracts are made from a private letter received from Mr. WILLIAM J. THOMPSON, who was employed in the 80's at Trentham Gardens, Staffordshire, under the late ZADOK STEVENS, and after passing two years or so in the Royal Gardens, Kew, left Kew to go to a Government appointment in Jamaica, 1889:—"I expect you wonder if we were all killed in the earthquake of January 14th last. We are thankful that we have escaped as well as we have done. We lost our home, and my wife and little girl were

injured, but I escaped. The rest of the people in our department all escaped without any personal injury, but have sustained a big loss in goods, &c. All the houses and stores in Kingston and suburbs are down; the Governor and friends are camping on the lawns under bamboo and coconut fronds. We are well off, as we have a wooden stable to shelter in. Owing to the earthquake and fire there have been about 1,000 people killed, thousands lamed for life, and about £5,000,000 lost. The crops of the country are still with us, unless we get a hurricane to blow them down. Kingston and district is a sad spectacle: churches, schools, houses, and stores all down. The poor people have not suffered much—it is those who were rich; but I am afraid they are now poor. This is a most unfortunate island: if it is not one thing, it is another. For the last two years we had had good seasons, and things were looking bright to all, and now comes this calamity to the island. The 14th January was the day that the West Indian Agricultural Conference opened. The opening took place in Kingston at 11.30—the same day that the shock occurred at about 3.30 p.m. This was the end of the conference, and all the people got off the island as quickly as they could. Sir DANIEL MORRIS and Sir ALFRED JONES escaped, but there were some fine men lost their lives. I was in Kingston at the conference, and only reached home about 15 minutes before the earthquake took place. I was in the garden at the time and saw the King's House buildings fall to pieces—all the place gone. Our home is one of the most complete wrecks there are."

THE SHREWSBURY SHOW.—Now that the Shropshire Horticultural Society's schedule is issued it is seen that not only are all the chief trade and society's classes for collections of vegetables put on a footing of equality, each being for nine dishes, but also that there can be no fewer than 10 first prize collections in the final competition for the champion extra purse of 10 guineas given by the society. The society's old class for 12 dishes is now just on a level with the trade classes, and will consist of nine dishes only, with a splendid first prize of £10. The local or county class is now also for nine dishes. It is stipulated that the champion prize competition shall be judged on a maximum of seven points to each dish basis. It is hoped that these "point" awards will be placed on each competing collection. The work of judging, in this champion class, will be one of exceptional character, even at Shrewsbury. In other matters the schedule appears to be similar to that of last year. It offers the same liberal encouragement to exhibitors of fruit, and exhibitors of flowering and ornamental foliage plants, whilst the classes for cut flowers are very numerous. The total receipts of the society last year amounted to £5,638 15s. 3d., being £109 8s. 4d. in excess of the receipts in 1905. A report of the annual meeting is reproduced on p. 127.

Publications Received.—Monmouthshire Education Committee. *Report of the Director of Agricultural Education*. October, 1906. Arrangements have been made for a course of lectures on agriculture and horticulture to be given at the Usk Higher Grade School, Little Mill Reformatory, Rumney, and Llanfrechfa Lower.—U.S. Department of Agriculture, Farmers' Bulletin, 275. *The Gipsy Moth, and how to control it*, by L. O. Howard.—Bulletin No. 63. *Papers on the Cotton Boll Weevil and Related and Associated Insects*, by A. W. Morrill.—Lancaster County Council, Education Committee, Agricultural Department, Farmer's Bulletin No. 2.—*Report on Experiment on Mowing Rye-grass and Clover*, by Edward Porter and R. C. Gaut.—*Agricultural Journal of the Cape of Good Hope*, January. Contents: Citrus in Albany and Bathurst, Rural Cape Colony (Wellington); Harvesting Competition, Khaki Bush, &c.

THE CORDYLINES.

(See fig. 54, also Supplementary Illustration.)

CORDYLINA AUSTRALIS, better known as *Dracæna australis*, is a very common plant in the south-west. In every town in South Devon and Cornwall the plants are to be seen on every side, and in Torquay, alone, some thousands must be planted, as considerably over a hundred fine specimens are in evidence in the public gardens, and they are also present in almost all private grounds. In the summer they present a beautiful sight, as almost every example blooms, and the great, branching flower-sprays, 3 feet or more in length, crowded with white blossoms, resemble huge plumes. They are sweetly-perfumed, and are all day visited by innumerable insects and butterflies. In the type the leaves are narrow, but the seedlings, which are raised in quantity in the south-west, vary greatly in their foliage, the leaves in some cases being fully 3 inches in breadth. These wide-leaved forms are far handsomer than the type. *Cordylina australis* is considered perfectly hardy in Devon and Cornwall, but two years ago 17 degrees of frost in November, followed by a day of brilliant sunshine, ruined some specimens in the neighbourhood of Plymouth. The tops of these plants were absolutely killed, but they eventually developed a number of new growths from the base.

There are many splendid examples of *Cordylina australis* in the south-west, but the finest known to me is the one illustrated at fig. 54. It is growing in the gardens at Enys, and is 20 feet in height, with a trunk circumference of 6 feet, at 1 foot from the ground. A short distance above the ground level the plant divides into four main branches, which are sub-divided into about 30 "heads," about 10 of which generally flower annually. This specimen is 47 years old, and was raised from seed sent from Australia.

C. indivisa, shown in the foreground of fig. 54, is very distinct from *C. australis*, though often confounded with it, and illustrations of *C. australis* have repeatedly appeared above the title of *C. indivisa*, while in many gardens *C. australis* is still grown under the latter name. *C. indivisa* is a native of New Zealand, where it grows at a considerable altitude. The leaves are very handsome, being about 5 feet in length and 5 inches in breadth, blue-grey in colour, with a midrib of bright red. It has, I believe, only flowered once in the British Isles, this being in the Treco Abbey gardens, Isles of Scilly, in 1895. The flower-shoot is pendent, and is composed of countless, minute blossoms, the spike, yellow and blue-black in colour, being more curious than beautiful. It is a rare plant, but there are a dozen or more specimens in Cornwall, the finest of which is probably one at Enys (not the specimen shown in fig. 54), which is 10 feet in height.

C. Banksii is also a native of New Zealand, and is easily distinguished from either of the above-named species. It is of moderate growth, and rarely attains a greater height than 6 feet, and is generally clothed, to the ground level, with arching leaves 4 inches in breadth. The branchlets of its flower-spikes are far fewer than those of *C. australis*, so that the white-blossomed panicles are lighter in appearance. An excellent supplementary illustration of *C. Banksii* appeared in Vol. xxix., page 44, and a representation of a specimen at Castlewellan on October 6, 1906. *Cordylina Banksii erythrorhachis* is a variety with bright red midribs to the leaves. This is to be found in at least one Cornish garden, and the type is fairly well represented in the county. *C. Hookeri*, *C. Doucetti*, and *C. Prince Albert* appear to be forms of *C. indivisa*. *C. lentiginosa* is of similar habit to *C. indivisa*, its leaves, when young, being yellowish, and subsequently turning to deep bronze-brown. *S. W. Fitzherbert, Kingswear, Devon.*

GALLOWAY HOUSE, WIGTOWN-SHIRE.

DURING a visit to the ancient and historical burgh of Wigtown in October last I had the privilege of seeing for the first time the famous grounds and gardens of Galloway House. This imposing residence of the Earl of Galloway, which, as the people in the neighbourhood proudly assert, "has windows for every day in

The cultivation of fruit has always been made a great speciality at Galloway House, a fact sufficiently illustrated and emphasised by Mr. Day's successes at the leading British exhibitions.

At Galloway House the Muscat Grapes, so attractive alike in their exquisite amber colour and delicious flavour, are largely grown. Such fine varieties as Muscat of Alexandria, Muscat Hamburg, Madresfield Court, and Mrs. Pince,

and is well represented by four large trees, one of which has an extension of branches upwards of 30 feet in area, as well as by many graceful cordons in various positions and aspects, all of which, in favourable seasons, bear abundantly. Plums, such as Jefferson's, Lawson's Golden Gage, Kirk's Seedling, and Coe's Golden Drop are very largely grown. Most of the Gages have a southern or western aspect, while the Czar, Early Orleans, Belgian Purple, Early Prolific, Deniston's Superb and Victoria are found to succeed equally on walls facing east. Mr. Day finds that the Victoria variety, which is of all Plums the most universally popular, succeeds well on walls with a northern aspect.

It is only in fine dry autumnal seasons that the thorough maturation of Figs can be attained in this locality. At Galloway House, where their culture under such conditions is generally successful, Castle Kennedy and Brunswick are among the most reliable and prolific varieties.

The finest herbaceous flowers, such as Francoa appendiculata and the great American Lobelia (cardinalis), survive adverse winter visitations and experiences in these gardens, with an inconsiderable amount of protection. Montbretia Germania is very effective; so also is the eminently beautiful Sparaxis pulcherrima, a special favourite of Sir Herbert Maxwell, which he grows grandly at Monreith. Cinnam Moorei, Mr. Day informs me, flowers with facility in sheltered situations, its soft pink blossoms being greatly admired. Roses of every free-flowering description are cultivated effectively; especially luxuriant are such varieties as La France, Homère, and Marie Van Houtte.

Hydrangea paniculata, Acer Negundo, the various exquisite forms of the stately Spiræa, with their graceful creamy or snow-white plumes, and many plants of kindred character, invaluable for their autumnal beauty and impressiveness, abound. Begonias and dark-hued Zonal Pelargoniums, whose decorative capabilities can hardly be over-estimated, are extensively cultivated, with splendid floral and artistic effect.

The private flower-garden, adjoining the great mansion house, though not of large dimensions, was extremely attractive; it was a radiant, varied picture, in a frame of richest green, at the time of my visit. David R. Williamson, Manse of Kirkmaiden, Wigtownshire.

PROPOSED EXHIBITION OF BRITISH AND FRENCH INDUSTRIES.

We have received the following letter for publication:—

British Embassy, Paris,
February 4, 1907.

My Lords,—I am commanded by the King to acknowledge the receipt of your letter of the 1st inst., in which you inform His Majesty that it is intended to hold an Exhibition of British and French Industries in London next year (1908).

The King is glad to learn that the minimum sum necessary to guarantee the expenses of the exhibition has been subscribed. His Majesty knows from experience that the success of such an undertaking depends more on private enterprise than on State support, but feels sure that, since the project has been happily entertained by the French Government as well as by His Majesty's Government, the French and British people will come forward to support the exhibition, which has for its object the commercial prosperity of the two nations.

The King wishes the exhibition every success, and sincerely hopes that it may be the means of strengthening the friendship which so happily exists between the two countries.

I have the honour to be, My Lords,
Your Lordships' most obedient servant,
F. G. E. Ponsonby.

His Grace the Duke of Argyll, K.T.
The Right Hon. the Earl of Derby, K.G.

* The word "minimum" refers to the conditions of the guarantee, which was not to become effective until the sum of £200,000 had been reached.



(Photo by S. W. Fitzherbert.)

FIG. 54.—CORDYLINE INDIVISA IN THE FOREGROUND, AND C. AUSTRALIS BEHIND.
(For text see page 122.)

the year," is grand in its environment, which is unquestionably one of its finest characteristics, as it is surrounded with stately and venerable woods, and looks towards beautiful Ravenshall across the silver waters of Wigtown Bay.

The Countess of Galloway is, happily, much interested in horticulture, so that her head gardener, Mr. James Day, receives from her every encouragement. Notwithstanding the fact that the Earl and Countess have been often from home for a lengthened period, their gardens, under Mr. Day's superintendence, have well sustained their appearance and reputation.

are cultivated with success. Black Hamburg is the prevailing early variety.

Apples of all the predominating kinds are everywhere grown extensively—the more ornamental species in picturesque situations. These include such recent introductions as Charles Ross, Rival, and Coronation. The finest Pears, grown in cordon form on the lofty walls, fruit very freely. Large spreading trees of Williams' Bon Chrétien, Louise Bonne of Jersey, Beurré Diel, Beurré Superfin, and Marie Louise Pears are magnificent on the walls. The variety last mentioned is especially appreciated by Mr. Day,

THE PROPAGATOR.

THE CUTTING BED.

If the garden is provided with a warm propagating house, there are many plants grown under glass which may be struck from cuttings at almost any season. Where no such structure exists, it is an easy matter to make one with stout boards. It may be of any desired length and breadth, 3½ to 4 feet being a convenient one for the latter, although a propagating bed which can be got at on all sides may be twice as wide. This wooden case should be placed in a small glasshouse capable of being heated

and pans, tanners' bark, half-decayed leaves of trees, or fine coal ashes should be employed in which to sink the pots, &c. Part of such propagating bed should be covered with glass lights. The total depth should be about 3 feet, and the side should be provided with several small doors, or hit-and-miss shutters, so as to enable the propagator to have complete control of the heat; and a valve should be fitted to the flow pipe in the chamber for the same purpose.

Cuttings should be inserted to the depth of ¼ to 1 inch according to species, soft-wooded ones being the more shallow, that is, when no pots or pans are employed. On such a bed

The following tropical plants can be struck from cuttings in the warmer division, viz.: species of *Ixora*, *Bertolonia*, *Sonerila*, *Cissus*, *Anoectochilus*, &c.

Cuttings of Monocotyledons.—Such plants as *Bromelia* and *Dieffenbachia* and *Phrynium* can be increased easily from herbaceous branches or shoots, whereas *Bambusas*, *Palms* and *Arundo* cannot be made so to do, and have to be struck from cuttings, which may be from 1 to 5 years old. By the first method are propagated *Pothos*, *Vanilla*, *Agave*, *Caladium*, and other genera. The cuttings of this order must have all their leaves preserved, too much time being

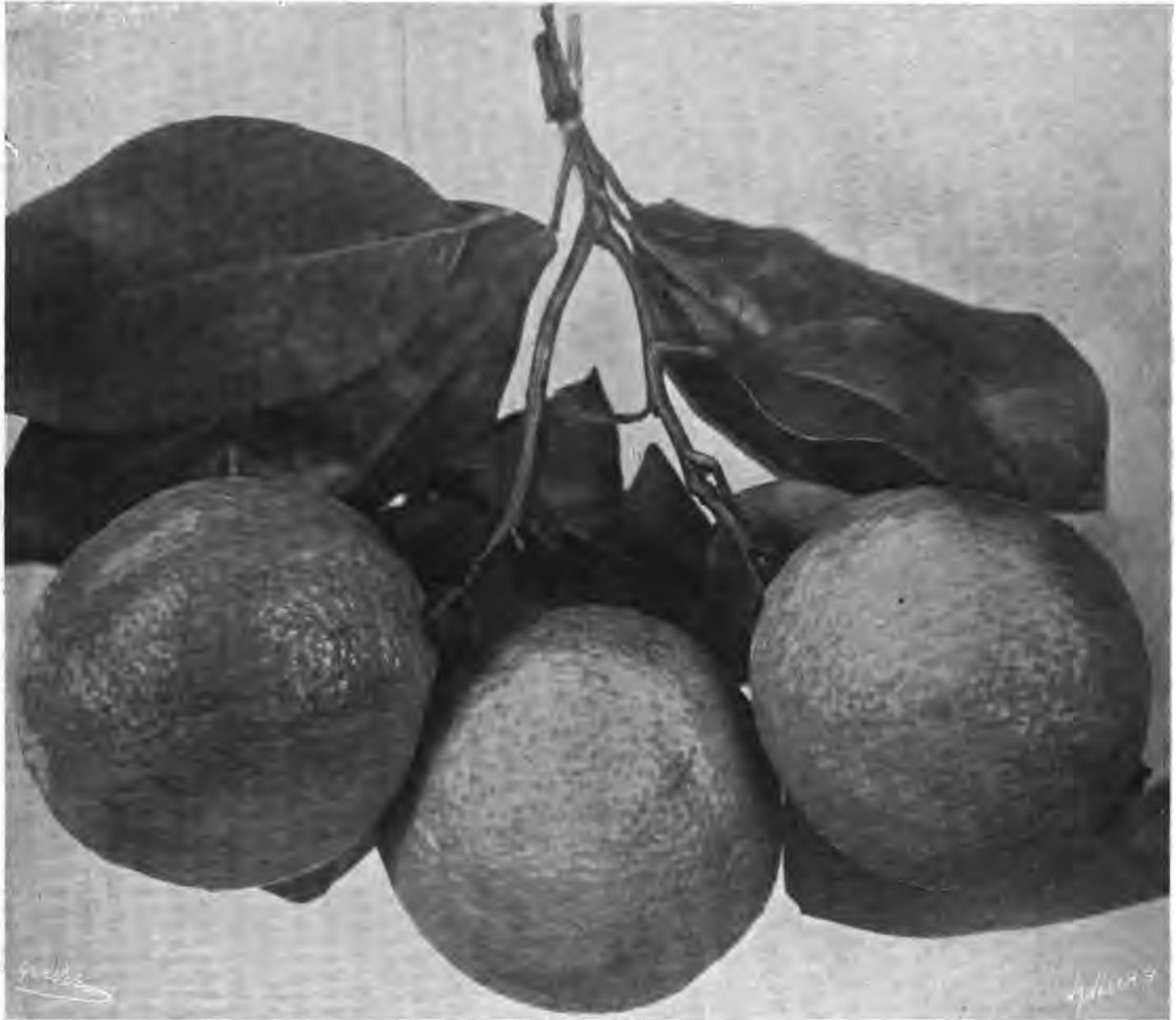


FIG. 55.—ORANGE EXCELSIOR, WHICH RECEIVED AN AWARD OF MERIT AT THE LAST MEETING OF THE ROYAL HORTICULTURAL SOCIETY AS GROWN BY MESSRS. RIVERS AND SON. (See page 109.)

up to a temperature in winter of 70°, if so high a degree be needed without unduly heating the hot-water pipes—i.e., these should be sufficient for the purpose. Two or four 4½-inch pipes may run beneath the bed, and two on each side of the central pathway. The case should be divided into two stages, the lower for the pipes and the upper for the cutting bed, the dividing floor being made of round staves, over which coarse sacking—coffee bags and the like—are spread. Over this floor there should be placed a 4 to 6 inch layer of soft peat and fibrous loam, and above this a layer of clean silver or washed sea sand, into which the cuttings should be inserted. If propagation is carried out in pots

soft-wooded plants such as *Alternanthera*, *Iresine*, *Coleus*, *Lantana*, *Fuchsias*, *Cuphea*, *Heliotrope*, *Verbena*, *Ageratum*, *Pelargoniums* of most sections, and most of the exotic species employed in bedding out and garden decoration may be placed. It suffices with many of these to lay them, without taking the trouble to cut each under a node or joint, on sand, earth, or leaf-mould. Air roots soon form, which seek at once to penetrate the sand, soil, &c. In close frames the action of the shut-up warmth is similar to that obtained under a great bell-glass, enough moisture being afforded to prevent wilting or withering of the leaves. The bottom heat of such a bed need not be greater than 75° to 80°.

lost before new leaves are formed. Among these plants are some with very long leaves, difficult to bring under bell-glasses, but this difficulty can be got over by binding the leaves backwards and fastening them to the cutting. Treated in this manner the leaves seldom decay. It is not necessary to take the points of the shoots as cuttings, for when divided into several pieces the operation is nearly as successful. With *Dracæna*, *Vanilla*, and *Cordylina*, the stem is cut into pieces just above a leaf and just below a bud without injuring either; similarly the stems of *Paulownia* are prepared as cuttings, the sections being 2 to 3 inches in length.

At this season Tree-Carnations may be struck

from cuttings; also double-flowered Primulas. Alpine and various hardy herbaceous plants may be struck from slips of the stems, root stock, or pieces of the root, placing these singly in small pots in a cold frame.

Cuttings of Willows of the kinds used in tying fruit trees on garden walls, and for the making of baskets; all kinds of Poplar, Golden, laciniated and common Elder, Privet of all kinds, and Sea-buckthorn may be inserted in prepared soil, and if possible in a partially shaded moist situation.

It is yet too early to graft out-of-doors subjects generally, but there are a few which may be taken in hand, viz., *Pyrus domestica* (the true Service tree), which may be grafted on thick pieces of its own roots well furnished with fibres; and the double-flowered Cherry (*Cerasus*) may be worked on the Mahaleb stock, a species easily raised from cuttings put in in the autumn. F. M.

FRUIT REGISTER.

LATE RIPENING PEARS.

BEURRE Rance ripens well here in ordinary seasons and possesses a fine flavour. It is one of the most profitable Pears, and it bears well with me on the free stock on the top of Streatham Hill. Another good late Pear is the Vicar of Winkfield. The crop of 1906 ripened well. This variety is well worth growing, for if the season is not warm enough to ripen it as a dessert Pear it is always good for stewing. The same may be said of Verulam or Spring Beurré. In some seasons this ripens well and makes a good late dessert Pear. I have known it sold (innocently) in a greengrocer's shop as Winter Nelis! These varieties require a warm season, plenty of water, and judicious storing. Grown against a wall they may suffer from drought. The free stock suits them best. W. Roupell, Harvey Lodge, Roupell Park, Streatham Hill.

LATE PEARS.

In reply to H. M., p. 37, it may be remarked that the quality of Pears often depends on soil and situation, and a variety that may be of excellent quality in one garden will not succeed in another. I have known late Pears to be ruined by drought, and others by being gathered too early. Late Pears must not, under any circumstances, be gathered till they are thoroughly mature, and when they will part readily from the spur, otherwise the fruits will shrivel at any early stage, and will never ripen, although they be kept for months. Olivier des Serres does well in most places, and this Pear keeps good until well into March. Grown on the Quince stock it does well as a pyramid tree, and also when cordon-trained. Late Pears should be stored in a very cool place, and be placed where it is warm a couple of days before they are required for dessert.

Ne Plus Meuris is a Pear worthy of extended culture; it is of medium size, and the tree is a good cropper, but the fruits require thinning, as they are produced in large clusters. This Pear succeeds best planted against a south or south-west wall, and when double-grafted on the Pear stock, the fruits are later and their flavour excellent.

Passé Crassane when well ripened is another variety of excellent flavour. It requires a long season of growth, in order to have the fruits at their best condition. It is a round Pear, with a long stalk, and is at its best from February to March.

Doyenné d'Alençon is a variety that will keep till the end of March. It can be grown as a bush or pyramid tree. This variety varies in its ripening considerably in hot and dry seasons;

it will sometimes be estabable early in January. **Easter Beurré** is an old favourite, needing high cultivation and plenty of moisture to bring the fruits to perfection. The fruits require much thinning to enable them to grow even to a moderate size. The best fruits are invariably obtained from single cordon-trained trees.

Beurré Rance succeeds well in a variety of positions, preferably on south-west or south-east walls. The flowers are very often ruined by spring frosts. The fruits are large and juicy and richly flavoured. It keeps in a good condition till March and April. A Pear not grown so largely as its merits deserve is Knight's Monarch. I have had fair fruits of this variety as late as May. It is very liable to drop its fruit in the final stages, and on this account some persons say it should not be thinned, but my experience teaches me the reverse of this practice, as it generally bears its fruits in clusters, and unless they are thinned early and thoroughly they will drop. This variety is liable to attacks of red spider, which must be guarded against.

Marie Benoist is a large and good late variety that keeps in fair condition until March. It bears well as a pyramid and cordon-trained tree, and the fruits need thinning. **Le Lectier**, a variety that is said to keep till February, was over in these gardens by the end of January.

Catillac is the best late-keeping cooking Pear. It succeeds well grown as espalier or cordon trees, and also as wall-trained trees. I have never found these fruits keep so long when grown on standard trees. **Directeur Alphonse** is also a good baking or cooking variety, in season from February till April. The above-named Pears are the best late-ripening sorts amongst a collection of over 70 varieties. W. A. Cook, *Leonardslee Gardens*.

TREES AND SHRUBS.

• ILEX CORNUTA.

NOTWITHSTANDING the fact of this extremely interesting Holly having been introduced to this country upwards of half a century ago, and of its merits being pretty well advertised during the first few years after its appearance in England; it is still counted a rare plant, and the owners of good specimens are few in number. As a rule, it is of rather slow growth, increasing in width more rapidly than in height. Even when mature, it does not form a large tree, being of much smaller proportions than our common Holly. The growth is usually dense, and the same may be said of the foliage. The evergreen leaves are thick, leathery and glossy, of a yellowish green above and paler beneath. They are very peculiar in shape, being more or less oblong with two strong spines near the base and three at the apex, which give a horn-like appearance to the leaves and account for the common name of "Horned Holly." Occasionally, small intermediate spines are produced, and on mature plants the spines are often reduced in number, or entirely absent, as in *I. aquifolium*. Fruit does not seem to be borne freely on cultivated examples, but herbarium specimens represent it as red and larger than that of the common Holly. The species was first brought to notice by Mr. Robert Fortune, who discovered it in April of 1846, when collecting for the Royal Horticultural Society in China, the locality being the neighbourhood of Shanghai. About three years later it was put into commerce by Messrs. Standish and Noble, of Bagshot, and in 1850 a good figure of it was given in Vol. I. of *Paxton's Flower Garden*, p. 43, a similar illustration appearing in the *Gardeners' Chronicle* for the same year, p. 311. Eight years later, it was made the subject of a plate in the *Botanical Magazine*, t. 5039. Dr. Henry and Mr. E. H.

Wilson both collected it more recently, the neighbourhood of Ichang being specially mentioned. It thrives under similar conditions to other Hollies, but needs the sides cutting in rather more when young, to throw strength into the leading shoot. W. D.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

VARIEGATED CALADIUMS FROM SEED.—The following condensed extracts are from an article on the raising of seedlings of Caladiums from seeds, which appeared in the *Gartenwelt* for January 5:—"I possess," writes the author of the article, "a number of plants, from a sowing made on December 28, 1905, which, in August last year, had, for the most part, six to eight tolerably large, vigorous, stalked leaves. In the month of September, the Caladiums grown from corms were beginning to ripen and their leaves to droop; whereas the seedlings were then in full vigour, and their leaves showing their brightest colouring. According to my observation the seedlings grew more rapidly than the plants from corms; and they are in general less tender, and what I would lay great stress upon, they continue in growth for a longer period of time, so that by suitable cultural conditions one can have, in December and January, vigorous, well-coloured plants. Owing to this fact, those persons who are interested in these plants, and have suitable glass-houses, should adopt the practice of raising the seedlings. The corms the first year have a diameter of 2½ to 3½ cm. As is especially important with all Aroids, the seed should be sown as soon as possible after maturing, the vegetation then will range between 80 to 90 per cent. If the seed has been obtained from a varied collection, the seedlings will exhibit in the first year great diversity of leaf-colouring, and occasionally new and singular markings. Seeds should be sown thinly on a mixture consisting of turfy loam, peat, and chopped sphagnum-moss, with a small quantity of sand added, and be so lightly covered as to be partly visible. To cover the seed is, really, not necessary, but to do so ensures more rapid and regular vegetation. A good start in a warm house should always be insisted upon. The young plants should be pricked out as soon as they can be handled, and in light, porous soil, like that in which the sowing was made. After-culture is the same as that afforded plants grown from corms." F. M.

MICE EATING THE BARK OF VINES.—(see p. 79). I have no doubt the offenders are wood-mice. They might be trapped with Nuts, Chestnuts, &c. The usual paint for vine stems—sulphur, soft soap (clay), &c.—ought to be sufficient protection. Where bitten, the vines might be wrapped with strips of old woollen material dipped in puddle made from yellow loam into which they will root if kept moist. This would assist the vines to form new bark where badly bitten. The small-meshed wire netting recommended on p. 79, might be used over all. W. Roupell, Harvey Lodge, Streatham Hill.

HOUSE FOR CARNATION GROWING.—In reply to *Enchantress*, who solicits information as to the best kind of house for Carnation growing, I would point out that the kind of structure is a minor item, and of far greater importance is a knowledge of those day by day details of culture without which but a small measure of success can be achieved. Probably some of the best "Malmansons" ever grown in the west of England some years ago were housed in a very old-fashioned, lean-to structure which, with its small squares of glass, heavy rafters and sash bars, and not a little drip, would to-day be considered quite unsuited to the requirements of these popular flowers. One is almost inclined to say that the present-day structures in which these plants are cultivated are too lofty, too airy, and too dry. The last-named defect is possible, particularly when the dryness is the outcome of much artificial heat. The other two conditions are not easily overdone and a well-ventilated house is more or less essential. A convenient width for a Carnation house is 18 feet or thereabouts, and this will allow of two side beds, each 3 feet in width, two pathways 30 inches wide, and a 6 feet wide central bed. *Enchantress* obviously requires an inexpensive house, and one of the cheaper types is that with side walls 3 feet high with side ventilating boxes

fixed therein. The ridge of such a house would be high enough at 8 feet and the side beds would be about 6 inches above the outside level, but this is readily modified by building an additional 6 inches on the outside walls. The beds upon which the plants are stood should be covered with a solid layer of clinker and ashes. Inch iron barrel uprights should be provided to support the roof at left and right of the centre bed and 1½ iron barrel upright set in concrete to carry the ridge. The rafters should be of best yellow deal, 1½ by 3 inches gauge, and placed so as to receive a stock size of 21-ounce glass. A continuous ventilator, of a depth between 20 and 24 inches, should be affixed to the south side of the roof. Four rows of 4-inch piping should be provided in the "Malmanson" end of house, and six rows in the other section. A house such as I have described can be erected and be provided with hot-water system for about 45s. per foot run. *E. H. Jenkins, Hampton Hill.*

ARAUCARIA IMBRICATA.—We have a fine specimen of this Conifer in these gardens with two erect branches growing from the base of the trunk in precisely the same manner as the one illustrated on page 100 in last week's issue. The two branches are about 8 feet in height. We have several very large specimens of the Chili Pine at Huntsham Court. The subsoil is clay. *W. H. Collett, Huntsham Court Gardens, Bampton, N. Devon.*

A SIMPLE THREADER.—On page 76 mention is made of a new tool for fixing cotton or thread on Gooseberry bushes. I have pleasure in sending you herewith a threader which explains itself. The idea is Mrs. Fred. D. Stewart Sandeman's. *Fred. D. Stewart Sandeman.* [Our correspondent sends a very simple, but effectual, appliance. It is a piece of thin bamboo about 2 feet in length, and at one end a reel of cotton is fixed to the rod by a brass-headed nail. A notch is made in the rod near the reel and the cotton runs through the bamboo and out at the end.—Ed.]

A RHUBARB SHOW IN 1858.—Enclosed are particulars of a Rhubarb show held in Sheffield in 1858. They were furnished to me by the son of one of the exhibitors, and I thought they would be of interest to record. "The Rhubarb growers of Sheffield held their annual show on June 21, 1858, when the prizes were awarded as follows—Two sticks of Rhubarb: 1st prize, Mr. John Nutt, weight 19 lb. 11 oz.; 2nd prize, Mr. Padley, weight 16 lb.; 3rd prize, Mr. H. Housley, weight 18 lb. 13 oz.; 4th prize, Mr. T. Walker, weight 13 lb. 5 oz. A second exhibition took place on June 28, when Mr. John Nutt again secured the 1st prize with two sticks of Rhubarb that weighed 17 lb. 6½ ozs., Mr. Padley being 2nd with 17 lb. 4 oz. The four sticks of Rhubarb exhibited by Mr. John Nutt were taken from one root and weighed 37 lb. 1½ ozs." *Hy. Kershaw, Firth Lodge Gardens, Sheffield.*

BLUE HYDRANGEAS.—In favourable seasons, Hydrangeas form quite a feature in these gardens, producing an abundance of huge flower heads with the various shades of pink and blue beautifully developed. The bushes are very old and grow in a soil that is more or less impoverished by the roots of larger shrubs and trees. They are partially shaded, and as a rule get only the morning sun. The soil is light, black and shallow, overlying in some places a sandy, and in others a red gravelly bottom. The situation is sheltered and close to the sea and the climate is mild. May it not be possible that failure in the development of the much-desired blue colour is sometimes due to an over-rich soil? Your correspondent (p. 68) by the two examples he cites helps, I fancy, to support this view. *M. (near Greenock, N.B.).*

—Last season, while staying in the Isle of Man, I saw many Hydrangeas, which succeed excellently in the island, but I never came across a single plant with blue flowers; they were all pink. One bush in particular, with a very large number of flowers, planted in the front of an hotel facing the sea, attracted my attention. This plant was growing in the shade, and was subjected to plenty of sea breezes, and a little salt spray occasionally. Another bush I noticed was exposed to the full sun, and this also had pink flowers. It may be said that the average outside temperature of the Isle of Man does not register as high as with me, and this fact may have a little to do with the colouring, but the principal factors are the situation and the nature of the soil. *J. C. W.*

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

FEBRUARY 12.—*Present:* Dr. M. T. Masters, F.R.S. (in the chair); Dr. A. Henry, Messrs. G. Massee, A. Worsley, W. Cuthbertson, G. Gordon, A. E. Bowles, G. S. Saunders, H. T. Güssow, C. H. Hooper, C. T. Druery, J. T. Bennett-Pöe, J. Douglas, and F. J. Chittenden (hon. sec.). *Visitors:* T. S. Sim, Esq., of Natal, and J. Burt-Davy, Esq., of the Department of Agriculture, Transvaal.

Caterpillars on Gooseberries.—Mr. G. S. SAUNDERS reported that he had examined the soil from under Gooseberry bushes sent to the last meeting and had found no cocoons of the Gooseberry sawfly; he therefore concluded that the caterpillars which had attacked the bushes were those of the "maggie moth," which do not pupate in the ground, "but in leaves which it attaches to the stem by threads, or in a light cocoon fastened to the stem under dead leaves, rubbish, &c., on the ground or on walls, &c. These should be searched for and destroyed. Any leaves which hang on the bushes after the others have fallen should be collected and burnt, and the dead leaves, rubbish, &c., under the bushes should be treated in the same manner; taking up the earth under the trees will be of no avail if the sample submitted was an average one."

Apple twigs diseased.—Mr. MASSEE reported that the Apple twigs from Falmouth showed the presence of canker, *Nectria ditissima*. He recommended that similar appearances on other twigs should be removed and "green fly," &c., should be kept down, as they distribute the fungus and also cause wounds through which it gains an entrance. Referring to other twigs shown at the last meeting attacked by *Sphaeroteca mali*, he said "diseased shoots should be cut off, as the mycelium hibernates in the bark and appears year after year. Good drainage checks the development of the parasite."

Apples spotted.—Mr. MASSEE also reported that the pitting and internal discoloration of the Apples shown at the last meeting by Mr. Hooper were due to the exceptional heat of last season, and were not in any way influenced by fungi or insects.

Cypripedium malformed.—Referring to the *Cypripedium* shown at the last meeting, Mr. WORSDELL wrote: "It is a case of fasciation, two flowers being concerned in the make-up of the whole. Taking the large flower first, the whole has become twisted out of the ordinary position, due to the *untwisting* of the ovary. The sepals are normal, but the lower, by the notch at its apex, shows signs of its true compound nature. Only one of the petals, viz., one of the *lateral* ones, is normal; both the others are curiously constituted, each being half labelliform and half sepaloid. As regards the column: the usual staminode (of the outer whorl of the andræcium) is present; there is a petaloid outgrowth which I interpret as belonging also to the outer whorl, while the two (usually fertile) stamens of the inner whorl are represented by a normal fertile and a more or less petaloid stamen. The ovary is straight, and consists of two carpels. The second flower has its stalk intimately fused with the ovary of the first; its bract is carried up so as to occur immediately below the first flower, as if forming one of the floral leaves of the latter; it subtends the bi-carpellary ovary of the second flower, which is as yet unexpanded, but the remaining parts of which were seen on dissection to be normal. A considerable number of *Cypripedium* and other Orchid sports are due to fasciation, in which two or more flowers are concerned; as, for example, in the last case reported on at the Scientific Committee by Dr. MASTERS. If this were more often borne in mind much of the difficulty of unravelling these complex structures would be avoided. The two flowers are often much more intimately blended than in the case described above."

Fasciated Bramble.—A curiously fasciated and contorted shoot of Bramble was received from Mrs. M. S. NICOL, of King's Langley.

Amaryllis spike withering.—A spike of *Amaryllis* was received from Twyford in a withered condition. It had been growing well, but suddenly stopped, and the leaves and stems became

weak and flabby. The roots appeared healthy and the bulb firm. The plant had been started about three weeks, and was plunged in a bottom heat of about 60deg. to 65deg. It was thought that the trouble was probably due to encouraging too great an amount of aerial growth before the roots were sufficiently developed to provide a proper supply of water.

Forest-journeys.—Dr. HENRY gave a brief outline of his recent travels in the Western States of America, Spain, Italy, Corsica, and Algeria, commenting particularly upon some of the forest trees he had met with, and speaking in appreciative terms of the Forest Service of the States, which in a few years has done a great amount of valuable work. The forests of the United States, he thought, were being rapidly exhausted, and this would greatly enhance the value of the woods of Canada. Mr. WORSLEY, who had recently been travelling in Portugal, remarked upon a dwarf variety of *Quercus Suber*, which covered considerable areas near Cintra, and said similar barrenness of the soil was following the destruction of woodlands in Portugal to that Dr. HENRY had described as occurring in other parts of the world. Mr. J. Burt-Davy, the director of the Department of Agriculture of the Transvaal, spoke of the species of *Widdingtonia* growing wild in South Africa, saying there was at least one species occurring wild in the Transvaal and others were cultivated, while Mr. SIM, of Natal, remarked upon the great variability of the species of this genus, one growing in the mountains merely in the form of bushes, but when transplanted to the valleys below attaining the size of a considerable tree. There appear to be many forms of this genus which are as yet not well known.

Daffodil flowering without roots.—Mr. E. H. JENKINS sent an example of a double-flowered Daffodil which had grown well, but had produced few and badly developed roots, illustrating the well-ascertained fact that flowers are produced from properly-formed bulbs when they are supplied with sufficient water and warmth, the former being able to pass apparently through the base of the bulb.

LINNEAN SOCIETY. GENERAL MEETING.

FEBRUARY 7.—Lieut.-Colonel Prain, C.I.E., F.R.S., vice-president, in the chair.

The Rev. John Gerard, S.J., F.L.S., brought forward "Some Observations of Climbing Plants," illustrating his remarks by lantern-slides from his own photographs from living plants and herbarium material. He began by pointing out the two opposing methods of describing spiral growth or torsion as viewed from the exterior or from the interior of the spiral, the result being that the "dextrorse" of the first is the "sinistorse" of the second method. With or against the sun, which applies to the northern hemisphere, is reversed in the southern hemisphere, and for these reasons he preferred to use the terms "clockwise" and "counter-clockwise" (shortened to "counterswise"); the Honeysuckle (*Lonicera Periclymenum*) and the Hop (*Humulus Lupulus*) turning clockwise, and the *Convolvulus* (*Convolvulus arvensis*) and the Scarlet Runner Bean (*Phaseolus vulgaris*) twining counterswise. He showed the result of some experiments he had made by growing Scarlet Runner Beans in opaque cylinders, to discover if possible whether the deviation of the twist were innate, or from the direction of the light, the conclusion being drawn that the plant possessed an inclination resembling the instinct of animals, of proceeding in a given direction, and resented any attempt to force it otherwise. The author concluded with some observations on the behaviour of tendrils, as those of *Bryonia dioica*, displaying one specimen which had varied the torsion four times, and showed 10 turns in one direction against 17 in the contrary.

Dr. Otto Stapf, F.L.S., then gave an abstract of his paper on "New Plants from Malaya," giving the history of his new genus *Hallieracantha*, which receives eight species from the genus *Ptyssiglottis*, Hallier f., and 11 others are added from the Kew collections; they form a very homogeneous group, are eminently shade-loving plants, and exhibit anisophylly in a very marked degree. The headquarters of the genus are in Borneo.

The last paper was by Mr. F. Chapman, F.L.S., on the "Tertiary Foraminifera of Victoria."

NATIONAL CHRYSANTHEMUM.

FEBRUARY 11.—The newly-constituted executive committee of the above society held its first meeting on this date, Mr. Thomas Bevan presiding. The following gentlemen were appointed to the Floral Committee: Messrs. Oliver, G. Hemmings, W. J. Godfrey, A. Jefferies, D. B. Crane, Ingamells, W. Howe, and J. H. Witty. The finance committee, the schedule sub-committee, and the publication sub-committee were also nominated. It was reported that the society's outstanding claim against the Crystal Palace Co. had now been fully discharged, and that the proposed arrangements to hold the 1907 shows there would be finally carried out, without delay. The Sydenham and District Gardeners' Guild, and the Bath Gardeners' Debating Society were duly admitted in affiliation, and several new members elected.

COVENTRY CHRYSANTHEMUM.

FEBRUARY 11.—The annual meeting of the above society was held on this date, the Deputy-Mayor of the city (Alderman A. H. Drinkwater) presiding. The report showed that but for increased subscriptions the society would have incurred a loss on last year's show owing to the exceptionally bad weather. The report and balance sheet were adopted. The officers for the ensuing year were appointed: President, Mr. A. E. W. Mason, M.P.; secretary, Mr. George Griffin, Coundon, Coventry; and treasurer, Mr. W. T. Browett.

BRITISH GARDENERS' ASSOCIATION.

FEBRUARY 12.—A meeting of the Executive Council was held on the above date in the R.H.S. Hall, Westminster, Mr. W. H. Divers in the chair. Twenty-four new members were elected, making a total of 1,011. The secretary reported that the Essex Hall had been engaged for the annual meeting on May 29, and it was decided that a conference on matters affecting gardeners be held on that date. The question of establishing a monthly or quarterly journal was discussed now that the membership exceeds 1,000, and the secretary was asked to report at the next meeting on the prospect of its support. It was reported that the Richmond Branch had arranged to hold a meeting on Friday, February 22, in the Fife Hall, Kingston-on-Thames, and Mr. R. Hooper Pearson was delegated to address the meeting, with Mr. A. Dean, V.M.H., in the chair, at 8 p.m.

The secretary wishes to call the attention of members to the fact that all subscriptions for 1907 are now due. *John Weathers, Hon. Secretary.*

SHROPSHIRE HORTICULTURAL.

FEBRUARY 18.—The annual meeting of the Shropshire Horticultural Society was held in the Music Hall, Shrewsbury, on the above date. The Mayor of Shrewsbury (Mr. T. Corbett) presided.

The annual report of the committee was read by Mr. H. W. Adnitt. It referred to the death of Mr. G. M. Salt, who for upwards of 25 years acted continuously as chairman of committee, until his resignation in July, 1902, through failing health. Among the special features of the last show were the magnificent collections from non-competitive exhibitors, which, in the opinion of the judges, had never been equalled. The report referred in appreciative terms to the services of the railway companies' officials in conveying so unusual a number of visitors to and from the town on the occasion of the summer show. The Board of Trade had been approached with the view of obtaining a license under Section 23 of the Companies Act, 1867, under which section the society might obtain the license of the Board of Trade to be incorporated by registration with Limited Liability, but without the word "Limited" to its name, with regard to their legal rights in their landed and other properties. The Board had expressed their willingness to entertain such an application if made, and had settled the memorandum and articles of association. This would confer upon the society a corporate capacity, and enable them to hold land and other property and deal with it in a legal way. The committee would take this important matter into consideration at an early date, and report to a further general meeting.

A financial statement was presented by Mr. J. Vine, which showed that the summer show receipts amounted to £5,394.8s. 6d., and the

expenditure to £4,175.11s. 3d., leaving a profit of £1,218.17s. 3d. The total receipts for the year amounted to £5,638.15s. 3d., and the expenditure to £5,018.3s. 1d., leaving a net profit for the year, after the payment of donations and £500 for improvements to the Quarry, of £620.12s. 2d. The society had never lost on a summer show.

The Mayor of Shrewsbury, in moving the adoption of the report, said the appreciative references to the late Mr. Salt were well deserved. The report and accounts were adopted. Mr. Peele proposed and the Rev. Mr. Hall seconded that Colonel Hope-Edwards be president for the ensuing year, which was carried unanimously. On the proposition of the Deputy-Mayor (Mr. Jones), a vote of thanks was accorded Mr. Darby for his kindness in presenting valuable prizes.

The retiring members of the committee were all re-elected.

A vote of thanks was accorded the honorary secretaries (Messrs. Adnitt and Naunton) and Messrs. Phillips and Vine.

SCOTTISH HORTICULTURAL ASSOCIATION.

(Concluded from page 110.)

THE NECESSITY FOR UNION.

Unity is strength, and so it must be in the horticultural world as it is in all other worlds. What has made our trades unions and all such other associations strong? It has been by union, by forming one great body of men, all interested in the same objects, and all using the same means of gaining the same ends, not by forming many small and independent associations all over the country or in the same town, all trying to gain the same object, but making use of different ways to gain that end.

It is only when they stand united that they can make their presence felt. Well, gentlemen, this has led me up to the suggestion that there should be union of the horticultural associations in our towns, and to give Scotland one great centre of horticulture worthy of a nation that has long been famous for the high excellence of its gardens.

In the course of a few more years, more of us must be struck from off the roll, and I therefore think that we should make some effort to hand down to the succeeding generation some monument of our efforts—a monument that will require no epitaph inscribed upon it, the epitaph of which will be engraved on the hearts of all those who take an interest in this great art.

The first question that will be asked will be: How can this be done? Well, gentlemen, I think there is no difficulty so great that a Scotchman cannot surmount it. I would appeal to our members, in the interests of horticulture, to strive to do their utmost while they are still amongst us to form one great horticultural centre for Scotland. That centre must be in Edinburgh, and were I to begin to dream again, which I do not want to do, but to deal, not with a shadow but with reality, I could see such a horticultural sun in our town dispensing its glorious light and invigorating heat over our native land that would make all Scotland blossom as a Rose, and shine forth as an emerald in the glorious light of its central orb.

Edinburgh once had an experimental garden conducted under the auspices of a horticultural association, the past history of which is most interesting to read. It is now no longer in existence. How is this? Could it not be reinstated in a city like ours, that considers itself the centre of all light and learning? This would be work for the great central society whose picture I have been painting.

Young men gardeners in Scotland are labouring under a great disadvantage in comparison with those of other countries, and they are also labouring under a very great disadvantage when compared with what is being done to educate lady gardeners in the science and practice of horticulture. The latter have their college and their experimental garden.

They have their lectures to attend and examinations to pass. Why is it that young journeymen gardeners of the opposite sex cannot enjoy the same privilege? It is simply because they have no college and no experimental garden to attend.

THE CAREER OF A YOUNG GARDENER: THE BOTHY.

Now, a few words about young gardeners who are to be the horticulturists of the future, and whose interests we have all at heart.

When a young lad on leaving school makes up his mind to become a gardener, what happens? A nurseryman is written to, and the fact is intimated, and his assistance is requested. In course of time an application for an apprentice is made, and after a few preliminaries are arranged, the lad is despatched with the inevitable trunk, and arrives at his destination perhaps in some outlandish spot where gardening is not one of the features of the place. He is put into what is called a bothy along with one or two other men, and he is told he will not only have to cook his own food, but also that of the others. That he will have to light the fire, clean the bothy once a week, and wash up the dishes when he can find time, which in some cases may be once a week, and, in fact, he will have to do all the menial work in the bothy. He is taken out to the garden and set to work. The first job he may be given to perform will perhaps be to wheel coals, or probably ashes, or to wash pots. I should not object to the latter; I have done it myself, and it teaches one cleanliness. He may then be given a spade, but possibly no one will show him how to use it, and he may not know the back from the front, but he flounders on till he gains some idea of how to use this instrument. He will be set to clean up after all the other men in the garden, and when able he may be

allowed to take his share in all the other work. How does he spend his evenings? Well, he has not much time to spare, as the bothy takes up a good deal of his time in the evenings trying to make it look respectable. He has no gardening papers and no books to read, and has no one to take any interest in his future career. He joins the other men in going to the nearest village or round the draught-board, with a light almost too dim to see the white from the black diamonds, and this goes on for three years, at the end of which time he is told his time is up, and he must make a change. He is again sent to the inevitable nurseryman with a note in his hand, announcing the fact that he has completed his three years' apprenticeship and wants a journeyman's situation. He comes in like a lost sheep, nervous, cold, and it may be hungry, and not as much money in his pocket as will pay his expenses to his next situation. He is despatched to some place perhaps more distant than where he came from, and when he arrives at his new situation he finds it not so good as the one he left, but he gets a few more shillings per week, and has an apprentice to cook his food and wash up after him. He remains here for a time, then seeks another change, and so on it goes till he is appointed to some small situation at 21s. per week with ceteras, never having thoroughly learned his profession. During the time of his wandering up and down he has hardly ever seen a gardening book or a gardening paper, and knows nothing about what is going on outside his own domain.

Now, gentlemen, I would ask you if a young man living in such surroundings as this is ever likely to become a great man. True, many have done so, I admit. To my mind I can think of nothing more likely to crush ambition out of the heart of a young man or sicken him more against his employment than the surroundings of an apprentice, and, in many cases, of a journeyman gardener.

Some of you older men may say: "I have passed through all those stages and under similar circumstances, and I don't see why young men of the present day cannot do the same. But that is not progress. Scotland a few hundred years ago was inhabited by a race of people who were very little above the savage races, and so was our now great ally, Japan, and unless both had developed, they might still have been in that same savage state. How are we to improve the position of the rising generation of young gardeners? Supposing we had an experimental garden, a good-sized one, and in that garden we had what we will call a college, a residential college, not a bothy, and supposing in that college there was accommodation for from 20 to 30, or from 40 to 50 young men who would have some one to cook their meals for them, wash up after them, and keep their rooms tidy and in good order. Supposing there was a reading room where no smoking was allowed, and another where smoking was allowed, and where all the gardening papers of the day were to be found, where there was a select library of books, comfortable rooms where men could read and study, where lectures could be given, and where young men would have to pass examinations. In this garden there would be fruit-houses and plant-houses, forcing-houses, and orchard-houses, and fruit growing and vegetable growing would all be carried out in an up-to-date fashion; where all new things as well as old would be sent for trial, and where the young men would be brought into contact with everything in the way of useful gardening, and where they would be taught the art in all its fullest details by practical men; where they would be taught not only the practice but the science of gardening. Such an institution as this, if once started, could be almost self-supporting. Here is a school from which to draw an up-to-date gardener, either journeyman, foreman, or master.

THE BRITISH GARDENERS' ASSOCIATION.

There has been an association formed in the South called the British Gardeners' Association, one of whose aims is to raise the social position of the gardener by attempting to raise their remuneration, by not sending men to situations unless they are to receive a living wage. If the gardener's social position is to be raised it must be done by educating them in such a way as I suggest, and all other good things will naturally follow. The Gardeners' Association has, I fear, begun at the wrong end.

Obituary.

J. S. UPEX.—We regret to record the death of this well-known gardener, after a long and painful illness, at Wiggantheorpe Gardens, of which place he had the care for 16 years as Gardener to the Hon. H. N. Fitzwilliam. Deceased was a contributor to our pages, and for several years has contributed to our yearly report of the fruit crops.

ENQUIRIES AND REPLIES.

AN EXHIBITION QUERY.—At a provincial summer show last year I was acting as one of the judges when the following class came under our adjudication. The decision given has caused much dissatisfaction to the exhibitor, so much so that he brought it forward at the annual meeting, but with no satisfaction to himself. The class reads thus: "Three vases of Carnations, distinct, each to contain four blooms: to be shown as grown and with Carnation foliage only." We inferred from the wording of the class the donor intended to encourage varieties

suitable for the open, requiring no support, showing their value as varieties in a natural manner. The first prize exhibit was found afterwards to have the blooms supported by small wires. This, we contended, was an infringement of the wording "as grown." If a variety requires supporting, it cannot be so valuable as one self-supporting by its stems. The aggrieved exhibitor wrote to an official of the National Carnation Society, who said the judges were distinctly wrong in disqualifying the exhibit. I wonder what is the consensus of opinion on a somewhat knotty point by the readers of the *Gardeners' Chronicle*. E. Molyneux. [The fault lies not with the judges or exhibitor, but with the compilers of the schedule [or donor]. It is indefinite, and everyone is left to guess for himself what the committee [or donor] had in their mind when they wrote the words "as grown." As written, it is the "vases" that are to be distinct. To show the futility of such terms, one might ask how the flowers, not the vases, are to be shown "as grown" when they surely grew upon plants, yet have to be exhibited as cut flowers. It would be fair to conclude that "dressing" was purposely excluded by the words—indeed, they might be read in all sorts of ways. On the whole, we think the judges were right.—Ed.]

CEDRUS DEODARA.—I have found that this Cedar thrives in the suburbs of London for about 40 years and then often begins to die at the top. Generally planted in the centre of the lawn in front of the house, the building shelters it for a time, and so soon as it rises to the level of the house it begins to fail, principally, I think, from cutting winds. The soil also in such situations is not often adapted to promote longevity. The same remarks apply also to the Puzzle-Monkey (*Araucaria*). We do not suffer much from smoke on Streatham Hill. W. Roupell, *Harvey Lodge, Roupell Park, Streatham Hill, S.W.*

PRIMULAS.—Will some reader inform me if they have succeeded well with the giant strain of *Primula sinensis* and the stellata strain, as two-year-old plants? What treatment was afforded? S. G.

ANSWERS TO CORRESPONDENTS.

ANNUALS FOR CUTTING: J. D. The following annuals are suitable for furnishing a supply of cut flowers: *Callistephus chinensis* (Chinese Aster), *Centaurea cyanus*, *C. moschata*, *Atriplex hortensis*, Marigolds, *Gypsophila elegans*, *Helianthus* species, *Coreopsis*, *Cosmos bipinnata*, *Brachycome iberidifolia*, *Saponaria calabrica*, Sweet Peas, *Chrysanthemum carinatum*, and *C. coronarium*, *Helichrysum bracteatum*, *Mignonette*, *Dianthus sinensis*, Larkspurs, *Matthiola bicipitis*, Poppies, *Silene pendula*, Zinnias, *Iberis umbellata*, *Leptosyne maritima*, Stocks, *Scabiosa*, *Clarkia*, &c.

BEANS: C. W. T. These are probably of a species of *Phaseolus*, and agree very nearly with *P. vulgaris*, the seeds of which vary considerably in size, colour and form.

BOOKS: W. P. We are not secondhand book-sellers and cannot tell you what price a single volume of Smith's *Flora Britannica* would fetch. We know of a book with such a title in 8 vols., but we do not think it can be the same as you describe as having 183 coloured illustrations of trees and shrubs and cultural directions, plates engraved by Sanson from drawings by Sydenham Edwards.—W. B. H. asks the probable price that would be obtained for a fine copy of Parkinson's *Paradisus*, Dodoens' *History of Plants*, and Hales' *Eden*, all perfect. We are not able to give the information required, but we shall be pleased to put any booklover in communication with our correspondents. In any case an advertisement would probably bring a reply.

CARNATIONS: H. B. Your plant is affected with the maggot of the Carnation fly, *Hylemia nigrescens*. Try washing the "grass" with quassia water.

DIGGING: F. V. We do not think your remarks are called for. Supervision of work is always desirable, and it is as necessary in respect to digging as other garden operations.

EVERGREEN SHRUBS: E. H. F. The appearances are those which would be caused by frost, and by the sun shining on the frozen leaves.

FOUND IN POST WITHOUT CONTENTS. Such is the endorsement made by the Post Office authorities on a luggage label addressed to us from Salisbury. Perhaps the sender will kindly note that his consignment has been lost.

FLOWERING GOOSEBERRY: R. W. P. S. From your description we expect that the plant is *Ribes aureum*.

IRON SULPHATE FOR VINES: Cray. A formula for iron sulphate solution is as follows: water 50 gallons, sulphuric acid 1 pint, and iron sulphate 25 pounds. Pour the acid on the iron sulphate, and when this latter is dissolved, add the quantity of water mentioned. This preparation is only suitable for applying in winter to the leafless shoots, and limbs of fruit trees. It must be handled with the greatest care, and must not be used as a spray on any account if the vine buds are beginning to break into growth.

MALT COOMBS: J. Taylor. This material is more suitable for cattle feeding than for manure, although it is occasionally used as such. Its manurial value may be stated thus: Humus-giving material, 90 per cent.; nitrogen, 4 per cent.; potash, 4 per cent.; phosphoric acid, 2 per cent. It is seen that the principal part of the substance is organic matter from which, when added to the soil, humus is formed. It is not a lasting manure, the nitrogen is very soon used up; it has, therefore, to be supplemented by some other material, such as stable manure, or a commercial fertilizer. For Lawns a dressing of 5 cwt. basic slag or superphosphate per acre should be given in winter or early spring, to be followed in March with an application of 10 cwt. per acre of malt coombs if the soil is poor and mossy; if it is rich in fertility, 5 cwt. malt coombs will be sufficient. For Vegetables the ordinary manures in general use may be supplemented by a dressing of 1 ton of malt coombs per acre, to be lightly dug or raked in previous to sowing seed or putting out plants. Malt coombs may be advantageously sprinkled between rows of Strawberry plants as soon as they begin to bloom. If malt coombs are dug or ploughed deeply into the soil, very little beneficial effect will be observed from their application. They are more suitable for light and loamy soils than for heavy, stiff clays.

MARGUERITE: E. J. M. The leaves are disfigured with the caterpillars of the well-known leaf miner. You will be able to find some still in the leaves, between the skins. Each one causes a sort of excrescence. Pinch them between the thumb and fingers. If you syringe the plants with quassia extract occasionally, it will render them distasteful to the perfect insect, and so prevent them from laying their eggs on the leaves. (See illustration in *Calendar of Garden Operations*, obtainable from our publishing department, price 7½d., post free.)

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.*

FRUITS: J. J. G. 1, Radford Beauty; 2, decayed; 3, Alfriston.—D. R. Blenheim Pippin.—D. K. S. 1, Harvey's Reinette; 2, New Bess Pool; 3, Ribston Pearmain; 4, White Paradise.

PLANTS: H. C. *Ornithogalum lacteum*.—M. A. T. A very good variety of *Cypripedium Boxallii*.—R. R. *Oncidium pulvinatum*.—T. H. 1, *Oncidium incurvum*; 2, *Brassia verrucosa*; 3, *Bulbophyllum suavisissimum*; 4, *Sophranitis cernua*; 5, *Lycaste aromatica*; 6, *Odontoglossum blandum*.—R. B. B. 1, *Pteris longifolia*; 2, *Adiantum colpodis*; 3, *Blechnum occidentale*; 4, *Selaginella laevigata*.—P. Q. 1, *Pteris argyrea*, the one with white middle; 2, *Polypodium vulgare semilacerum*, syn. *hibernicum*; 3 and 5, *Cattleya Trianae*; 4, *Dendrobium*

Wardianum.—C., *Rumex*.—Helaine Solier used in gardens for the same purposes as the dwarf Mosses.—J. W. O. *Chimonanthus fragrans*.

PEACH SHOOTS: F. S. H. The death of the buds is due to some error of detail in management, but we cannot say what.

PEACH TREE DEAD: S. C. The roots show no trace of fungus disease, but the tree may have been badly affected with "silver leaf." When planting another tree do not neglect to thoroughly sterilise the walls and the soil against fungus spores by syringing with a strong fungicide, using carbolic acid on the walls, and Jeyes' fluid to the soil.

PELARGONIUM HENRY JACOBY: *Geryanium*. It may be that the plants are not of this variety at all, and as change of stock is sometimes desirable, you should secure cuttings next season from some other source. You must, however, remember that flowers produced during the winter cannot be expected to have their colours developed so well as in the summer time.

ROSES FOR MARKET SUPPLY: J. R. *Midlothian*. Having regard to the conditions in your district the following varieties of "Hybrid Perpetual" Roses are recommended as being the hardiest for outdoor culture: *Crimson*, General Jacqueminot, Charles Lefebvre, Captain Hayward, and Hugh Dickson; *pink*, Mrs. J. Laing, Mrs. R. G. Sharman-Crawford, Mad. Gabriel Luitet, and Baroness Rothschild; *white*, Frau Karl Druschki, *Boule de Neige*, and Margaret Dickson. For yellow flowers you must fall back on the "Teas" and "Noisettes," such as *Etoile de Lyon* and *Souvenir de Pierre Notting*.

SULPHATE OF COPPER: E. P. Copper sulphate enters into the composition of the Bordeaux mixture, and we should prefer to spray the Carnation plants with this latter preparation. Taking the formula for Bordeaux mixture as water 50 gallons, copper sulphate 6 pounds, and unslacked lime 4 pounds, you might use this at about half strength.

SULPHUR: N. C. C. Sulphur is useful to destroy mildews and other surface fungus diseases, and it is applied by dusting the powder of flowers of sulphur directly on to the foliage or by painting the water pipes with a mixture of sulphur and water, or by syringing water containing sulphur over the plants in the form of a spray. You do not name any specific disease, but we may say that the Bordeaux mixture is an excellent fungicide, and others include a solution of sulphate of copper, potassium sulphide (liver of sulphur), ammoniacal solution of copper carbonate, &c. These fungicides, however, need to be used with great care, and if you have had no experience with them you would do well to read the *Text Book of Plant-Diseases* by Geo. Massee, and obtainable from our publishing department; price 6s. 4d., post free.

VINES: J. P. We should think the death of the roots is due to the condition of the border. Make a new, well-drained border, and start afresh.—E. A. The shoots should be stopped just beyond the second leaf after the inflorescence (flower bunch).

VIOLET FRAME: J. R. F. Get fresh soil if you can, but, failing this, it is not likely that the Violet disease will attack the Stocks, Asters, Zinnias, &c.

WOODLAND FOR PERMANENT PASTURE: *Tutaculum*. If the clay is not excessively stiff, but sandy and loamy as you describe it to be, it would be well to break this up by trenching, and to mix some of it with the few inches deep of leafmould now at the surface. A crop of Potatoes taken this year, as you suggest, would be a very good means of cleaning the soil. You should procure a book on the subject of permanent pastures, such as that by Mr. Martin J. Sutton, Reading.

WREATH MAKING: *Student*. Busy firms would have no time to spare in giving you tuition in this art, unless you were willing to go as an apprentice. You should advertise for someone connected with a good firm willing to impart the knowledge for a remuneration.

COMMUNICATIONS RECEIVED: F. J. C.—Kelly and Co.—F. C. P.—W. M.—E. C. C. D.—Cantreyn—S. C.—A. C. B. (with thanks).—A. G. S.—A. P.—W. P.—Fisher—C. A. H.—Scotsman—B. C.—P. F.—J. G.—W. B.—W. H. A. E. U.—A. J. H.—F. M.—H. T. G.—G. F.—J. F. Mc.—J. C.—T. J. H.—T. S.—W. P. B.—H. W.—T. H. B.—Mrs. W.—A. D.—W. J. T.—H. F. Macmillan.



THE Gardeners' Chronicle

No. 1,053.—SATURDAY, March 2, 1907.

CONTENTS.

Abies nobilis and its allies	144	Odontoglossum crispum	
African exhibition at Westminster	141	Harryanum "F. Sander"	142
Apple High Canons	133	Odontoglossum Wattianum princeps	135
Begonia Gloire de Lorraine seedling	141, 145	Orchid notes and gleanings	
Bird life in London	146	Cypripedium Miss Dora Webb	132
Books, notices of—		Epidendrum rhizophorum	132
The Modern Carnation	136	Orchid sales, forthcoming	139
Transactions of the German Dendrological Society	135	Pears, late	133
Coldrenick, rare trees at Country garden, the	134	Pipe, the Calabash	134
Current bud mite	145	Poisonous insecticides, the sale of	140
Cyclamen, the culture of	132	Potatoes	140
Diseases of fruit trees	140	Rosary, the—	
Forcing plants	140	Cultural details for March	133
Foreign correspondence—		Societies—	
Teneriffe, a note from	134	American Carnation	146
Fruit grading, the need for	140	British Gardeners' Association	146
Graft hybrids	140	Cardiff Chrys.	146
Hellebores in Kew Gardens	139	National Chrys.	147
Hydrangeas, blue	144	Southampton Hort.	146
Insecticides	145	Soil sterilisation	129
Musa Basjoo	145	Sweet Peas	144
Nomenclature of garden hybrids, the	138, 146	Vienna, horticulture at West Indies, the	138
Nursery Notes—		Week's work, the—	
Carter & Co., Forest Hill	143	Flower garden, the	137
Sutton & Sons, Reading	143	Fruits under glass	137
Obituary—		Hardy fruit garden	136
Rostrup, E.	141	Kitchen garden, the	136
Vickery, John	148	Orchid houses, the	136
		Parks and gardens	137
		Plants under glass	137

ILLUSTRATIONS.

Apple, High Canons	133
Begonia Gloire de Lorraine, seed vessels of	145
Cones of Abies nobilis and its allies	144
Hellebores growing among hardy Ferns in Kew Gardens (Supplementary illustration).	
Larix Grinnthii	130, 131
Odontoglossum crispum-Harryanum "F. Sander"	142
Odontoglossum Wattianum princeps	135
Pipe, the Calabash	134
Primula, "The Czar"	148

THE STERILISATION OF SOIL.

CULTURAL sterilisation means the destruction of all ordinary animal and vegetable life contained in the soil, by means of steaming, baking, or other methods without prejudice to its fertility. This is of the highest interest and importance, for, as shown by the Rothamsted investigators as the result of elaborate and prolonged researches: (1) Most of the nitrogen assimilated by crops—plants, flowers, fruits, and vegetables—is derived from the nitric acid contained in the nitrates in the soil; (2) the nitric acid in the soil is produced from the nitrogenous compounds of the soil itself, from the nitrogenous organic matter of animal and vegetable remains and manures, from the ammonia of artificial manures, and from the ammonia supplied by rain and condensation from the atmosphere. A very small quantity of ready-formed nitric acid is supplied by rain and condensation direct from the atmosphere. Nitric acid in combination is also provided by the direct application of nitrates. (3) The ammonia of ammonium-salts is rapidly converted into nitric acid in the soil, as also is the nitrogen of some organic matters, such as urine. The nitrogen of rape-cake, that of the less soluble parts of farmyard manure, of stubble, or

roots, &c., is much more gradually converted into nitric acid, and it may require many years for the conversion of the whole of it. The nitrogenous compounds of the soil itself are very slowly converted into nitric acid, but the soil yields a certain quantity every year.

The conclusions to be drawn from the foregoing data are: (a) That where the soil is of a turfy nature, as in the case of loam cut from a pasture to a depth of 2 or 3 inches, or the surface soil of land that has been liberally dressed with animal manures taken as compost, there will be an accumulation of nitrogenous and mineral matter, and such accumulation constitutes what is known under the term "condition." (b) In order to conserve this "condition" the soil must not be sterilised, that is, its contained organic substances must be retained, for upon the presence of nitrates and the ammonia yielding matter depends the present and continued fertility. In brief, the fertile soil must not be sterilised by heat to the extent of annihilating the organic matter, or even to the degree impairing its fertility.

The reasons for not so sterilising the soil are twofold: (1) In order not to destroy the contained organic substances which, in decay, are converted into carbonic acid, water and ammonia. (2) To retain unimpaired the bacteria that effect nitrification, both the micro-organisms that possess the property of converting ammonia into nitrous acid, and the other micro-organisms that possess the power of converting nitrous acid into nitric acid, which combines readily with the lime, potash, or soda present in the soil to form a nitrate of these elements, and these nitrates, by their solubility, are soon dissolved by water, and are very readily taken up by growing plants.

CULTURAL STERILISATION.

Thus the term "sterilisation" is a misnomer, for the soil steamed, or baked, or otherwise treated for the destruction of contained parasitic animal and vegetable pests, is not, when properly treated, sterilised, or, in other words, is not deprived of its "condition" and of its sources of sustained fertility. Indeed, cultural sterilisation, a very different thing from scientific sterilisation for experimental purposes, has the effect of rendering the nitrogenous matter more readily available for nitrification, and also of rendering some of the soil constituents more soluble, while at the same time it destroys the herb-ages—weeds and weed seeds, insect and fungoid pests, Lichens, Liverworts, &c. Soil under glass becomes sour and stagnant in the course of time, impeding the work of beneficial micro-organisms; hence the need of frequent renewal or renovation. Plant-foods are obtained partly from the air, and of these carbonic dioxide and water are the chief, and partly from the soil, and these latter supply the nitrogen compounds, as well as potassium, phosphorus, and other elements. These elements are worked up by the plant, by the agency of light on the leaves, into complex compounds, such as sugar, starches, fats, and proteids. When vegetation is used as food by animals, part of the nitrogenous elements is utilised for the formation of new albuminoid substances in the animal body, but a part of them is at once reduced into the somewhat simpler condition known as urea, the form in which

waste nitrogen is commonly excreted from the animal body. Urea, however, is not a plant-food, for ordinary plants are entirely unable to use it. Part of the nitrogen absorbed by the animal is stored up in the animal's body, and thus it contains, after it has died, nitrogen and other compounds of high complexity, which plants are not able to use: that is, a plant cannot be fed upon fats, muscle-tissue, and bones, they being of no use, in those conditions, to the plant, as they must be first broken down into less complex substances by the aid of bacteria. The whole process is one of decay, resulting in the decomposition of the tree or animal. What has become of the matter? Part of it has passed into the air in the form of gases and water-vapour, and part of it has changed its composition and has become incorporated with the soil.

DECAY AND PLANT FOOD.

This process of decay of organic matter is one in which bacteria play the most important part. In the decomposition of animal tissues bacteria mainly, if not alone, are the agents, and they are always present in the air, in the soil, and in the water, ready to seize upon any organic substance that provides them with food. This chemical decomposition breaks up the complex bodies into simpler compounds, and the final result is a thorough destruction of the plant or the animal or the material excreted by animal life, and the reduction of all into forms simple enough for plants to use again as foods.

But in the decomposition that thus occurs some of the material is changed into compounds too simple for use as plant-food, and among these are those containing the nitrogen. The changes result in the formation of nitrogenous products as simple as ammonia, or into compounds which the chemists speak of as nitrites. These compounds are not ordinarily within reach of plant life, for plants chiefly extract their nitrogen in the form of nitrates from the soil. Nitrates contain considerable oxygen; ammonia, one of the products of putrefactive decomposition, contains no oxygen; and nitrites, another factor, contain less oxygen than nitrates. These bodies—ammonia and nitrites—are too simple for plants to make use of in their uncombined condition.

NITRIFYING BACTERIA.

Now come in the micro-organisms known as nitrifying bacteria, which exist in the soil everywhere. These organisms grow and feed upon the soil ingredients, and in the course of their life bring about a union of the nitrogen with oxygen. There are several different kinds of nitrifying bacteria with different powers. Some of them cause an oxidation of the nitrogen products by means of which the ammonia is united with oxygen and built up into a series of products, finally resulting in nitrates. By the action of other species, still higher nitrogen compounds, including the nitrites, are further oxidised and built up into the form of nitrates. After the nitrifying organisms have done their work, the nitrates are left in the soil, and these may enter into the roots of plants as foods.

Even yet the food cycle is not complete, for some of the nitrogen of the dead and decomposing plant or animal passes into the air in

the form of ammonia, and this evolution goes on wherever that putrefaction takes place. This part of the nitrogen has passed beyond the reach of the plants, and there are still other methods by which nitrogen is lost to the soil. There is loss by the gradual washing away by the draining into the ocean—a slow but sure extraction of nitrogen from the soil. Much loss also goes on through the disposal of sewage by the large towns away into the sea.

Much nitrogen is also wasted in the manufacture of explosives. Saltpetre, for instance, is equally good as a fertiliser and as a basis for gunpowder. Indeed, man throws the most valuable of plant foods away, and it is this taking from the stores of nitrogen that in a large measure forces farmers and gardeners to purchase fertilisers.

Bacteria, however, have the power of reclaiming from the atmosphere more or less of this dissipated nitrogen. The bacterial life acts in at least two different ways. In the first place it has been found that soil entirely free from all common plants, but containing certain kinds of bacteria, if allowed to stand in contact with the air, will slowly but surely gain in the amount of nitrogen-compounds it contains, and that these nitrogen compounds are manufactured by the bacteria in the soil is plainly shown by the fact that they do not accumulate unless bacteria in the right quantity and of the proper species are present. This fixation of nitrogen is not performed, as a rule, by any one species of micro-organism, but by two or three of them acting together, for when certain combinations of bacteria have been placed in the soil, this fixation of nitrogen resulted, but no one of the species was found capable of producing this result alone. How far this fixation of the free nitrogen from the atmosphere extends has not been determined. G. Abbey

(To be continued.)

RARE TREES AT COLDRENICK.

FOLLOWING the lead of Sir Charles Lemon in the west and of Sir William Molesworth at Pencarrow in the east of Cornwall, Mr. E. J. Trelawny, better known by his famous cognomen "Greek" Trelawny, planted at Coldrenick many rare coniferous and other trees and shrubs. "Greek" Trelawny was an intimate friend of Shelley and Byron. In 1822 he recovered Shelley's body and was present when it was burned on the sea-shore at Via Reggio. Later in life he sat as the mariner for Millais' famous picture, "The North-West Passage." Mr. Trelawny was a descendant of the famous Bishop of Bristol, one of the seven bishops tried on June 29, 1688. Their trial and prompt acquittal is a matter of history. Bishop Trelawny was a Cornishman, and his danger roused his countrymen to an intense pitch and inspired the writing of "Trelawny," the rousing war-song and march-past air of the Cornish Regiment. The refrain of it runs:—

"And shall Trelawny die?
By Tre, Pol, and Pen,
Twenty thousand Cornishmen
Shall know the reason why."

Coldrenick lies four miles south of Liskeard, and is surrounded by most romantic scenery. To the west is a remarkable succession of steep hills and deep valleys, several of which are bridged by the railway. One viaduct—over 100 feet high—is built across the lower portion of the Coldrenick estate. A few miles to the south the view embraces the broad Atlantic, Whitesand Bay, and the beautiful Looe Harbour. Contrary to the general custom in Cornwall, the mansion is built on high ground, and while it enjoys many fine views it is exposed to the fierce gales which periodically sweep the

country. This has necessitated the planting of a broad belt of shelter trees to protect the rarer subjects. Attached to the mansion is a conservatory, and in front of this is a formal flower-garden. Our visit to Coldrenick was made principally to inspect the trees, and among the many fine examples seen prominent mention must be made of the very rare and magnificent Himalayan Larch (*Larix Griffithii*). According to Veitch's *Manual of the Coniferae*, this graceful tree was first discovered in Western Bhotan by the indefatigable botanist whose name it bears. In 1848 Sir Joseph Hooker sent seeds from Sikkim to Kew, where numbers of seedlings were raised and afterwards widely distributed, but nearly all these plants died. [See

same age, is in the Pencarrow pinetum. *Larix Griffithii* develops stout, horizontally disposed branches, and from these hang long pensive branchlets which, when furnished with leaves, sway in the slightest breeze. They are thickly set with unusually large brown-tipped spurs. The leaves are in denser tufts and are broader and stouter than those of the common Larch, and in autumn change from a healthy green to a dull brown colour and remain on the trees till late in the year.

The young cones which usually appear at the middle of March are larger than those of *L. europæa*. At first they are yellow tinted with green, but the green colour soon fades, and after pollination the yellow gives place to



FIG. 56.—*LARIX GRIFFITHII* AT COLDRENICK.

Sir Joseph Hooker's drawing and account of this tree in our issue for June 5, 1886.—ED.] I know of only three trees of any size, and of these the specimen at Coldrenick is the finest. It is 57 feet in height, with a straight tapering trunk clean of branches for 20 feet from the base, and it has a girth of 4 feet 7 inches at 5 feet from the ground. From where it branches to its top the tree is remarkably well balanced, with series of horizontal branches.

At Strete Raleigh, near Exeter, there is a fine tree that measures 50 feet in height, and with a bole 5 feet 3 inches in circumference at 5 feet from the ground level. This tree has a very large branch on one side which detracts from its symmetry. A smaller tree, of probably the

brown. Even in the young stage the cones, which are freely produced, are very large for the genus; an average cone measures 3 inches in length and $3\frac{1}{4}$ inches around. The cone bracts project and are reflexed. The seeds germinate freely, but the seedlings require careful handling, as they readily "damp off."

Mr. Skin, the head gardener at Coldrenick, showed me a healthy batch of two-year-old trees which he has been successful in raising. Plenty of light and air and careful watering are necessary with these, as with all other seedling Conifers. Recently while planting a young specimen of *L. Griffithii* I noticed that the root tip was of a bright pink colour.

Near by is a very shapely plant of *Torreya*

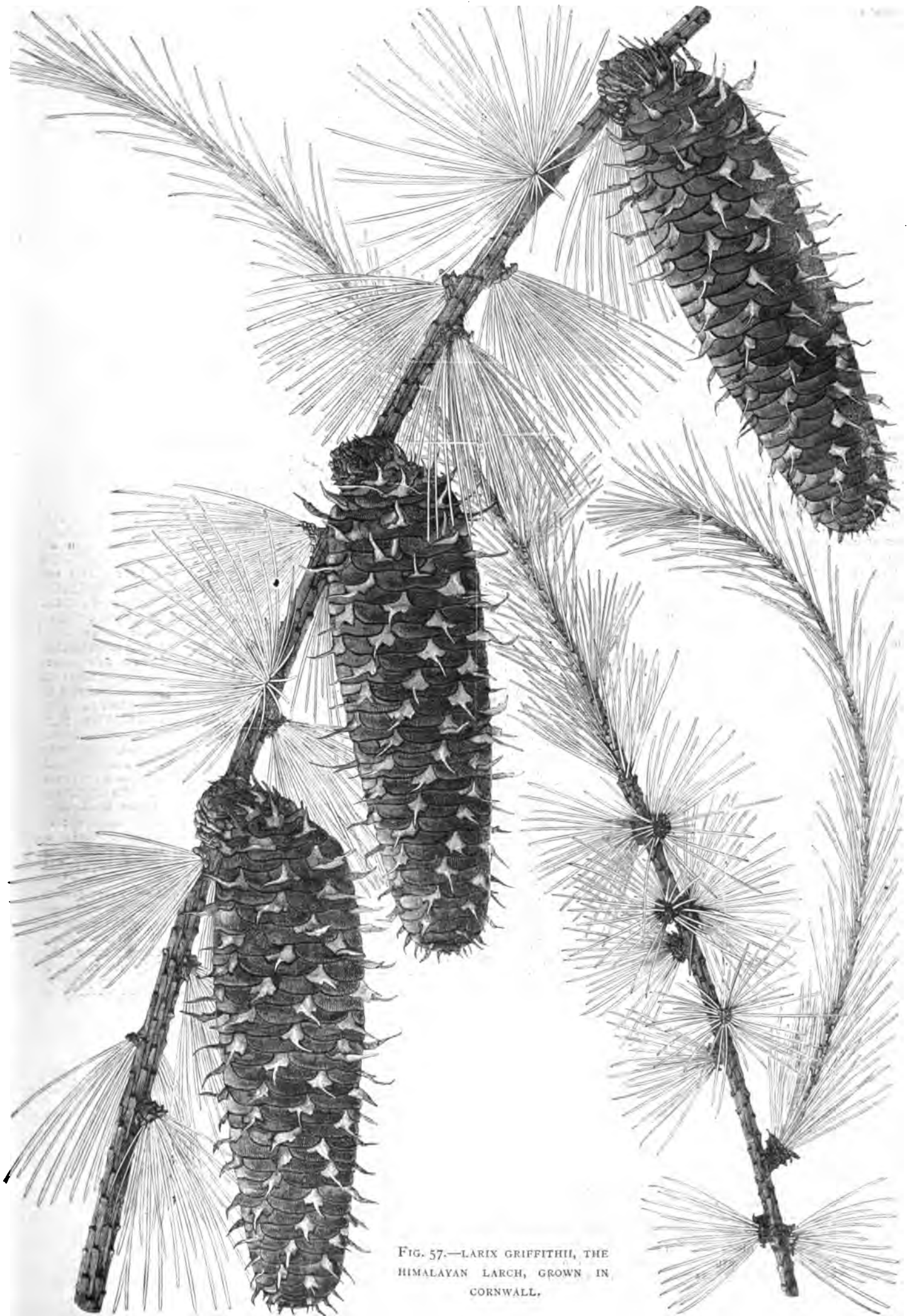


FIG. 57.—*LARIX GRIFFITHII*, THE
HIMALAYAN LARCH, GROWN IN
CORNWALL.

californica, in height about 35 feet. The Californian Nutmegs are comparatively rare in England. Growth is said to be very slow in the early stages, but where the plant thrives it ultimately makes such a handsome tree that quite recompenses this initial disappointment. *Pinus insignis* (radiata) thrives well in the moist atmosphere of Cornwall, and those at Coldrenick are no exception. The tallest example measures 85 feet, and has a girth of 14 feet at 5 feet from the ground. Near by this last mentioned tree is a shapely *Libocedrus decurrens* that is just over 50 feet in height, with a trunk 6 feet 6 inches in diameter. A tree of *Fitzroya patagonica* has branched close to the ground and grown up into a many-stemmed large bush, as is usual in our country with this South American Conifer, which at home is said to form a lofty tree. The tree under notice has six stout branches, the tallest being 24 feet high, well furnished with the characteristic pendulous branchlets. Nearly opposite this *Fitzroya* is a beautiful tree of *Dacrydium Franklinii*—by far the finest specimen I have ever seen of this rare and beautiful Tasmanian Conifer. It is over 12 feet high and has a spread of branches 24 feet in diameter. The main branches are developed nearly horizontally, and from them hang secondary branches 4 to 5 feet in length and densely clothed with healthy dark green foliage. A *Retinospora squarrosa* (Hort.), some 30 feet in height, is a very pretty and well-furnished specimen.

Several examples of *Cryptomeria japonica* form quaint and striking trees. Here they usually branch when from 5 to 10 feet high, and form five or six stems, which give the trees a very eastern appearance. At this part of the estate there is a fine avenue composed of Sycamore and Beech trees planted alternately, and at the end of this avenue is obtained a fine view of the surrounding country. The mammoth *Sequoia gigantea* (Wellingtonia) usually does only moderately well in Cornwall, so that I was not prepared to see such a fine specimen as the one at Coldrenick, which is over 75 feet in height and shapely, with a girth of 9 feet 6 inches at 5 feet. *Pinus parviflora* is not, of course, so large a tree, but there is one well grown and bearing an unusually large number of cones. By its side stands a fine tree of *Thuja dolabrata*, that is quite 35 feet high, of perfect shape and broadly pyramidal in outline.

A specimen of the rare Evergreen Beech (*Fagus betuloides*) arrested my attention; unfortunately it has been much overgrown by the shelter belt. The tree is of a goodly height, but it is much branched and one-sided. A 25 feet high *Cephalotaxus Fortunei*, with a goodly crop of small green, plum-like fruits, has shared the same fate, but from the path side it is a most beautiful object. Mention must also be made of a charming tree of *Saxegothea conspicua*, 30 feet in height and well furnished with healthy drooping branches. In some Cornish gardens this Chilean tree is confounded with the rather more common *Prumnopitys elegans*, which has the same habitat. When seen growing side by side there is only a slight similarity to be detected. Both trees have, especially when young, a general Yew-like appearance, but here the similarity ends, and the two trees, once properly seen, should not be difficult to distinguish.

In the background there stands a very straight *Cedrus atlantica*, that rears itself 65 feet high and with a girth of 5 feet 7 inches. The specimen is symmetrical and of very good form. A giant *Thuja* (*T. plicata*) is over 60 feet high and has a girth of 7 feet. *Cupressus obtusa aurea* measures 30 feet, and has every appearance of being still higher, for its top has not yet become rounded. This is a beautifully coloured specimen.

Besides planting these specimen trees, Mr. Trelawny made an extended planting of many

of them, to test their value for timber purposes. The trees already noted occupied nearly all the time at my disposal, so that I had perforce to content myself with just a glance at this valuable and highly interesting plantation. But I was able to see that so far as growth and straightness of bole was concerned, the Douglas Fir, *Thuja plicata* (more generally known as *T. gigantea* or Lobbi of gardens), *Abies Nordmanniana*, a Silver Fir which grows remarkably well all over Cornwall, *Pinus excelsa*, and *Cryptomeria japonica* quite held their own when in company with such trees as the Scots Pine, Larch, Oak, Beech, &c., that have been planted with them. A. C. Bartlett.

ORCHID NOTES AND GLEANINGS.

EPIDENDRUM RHIZOPHORUM.

THIS well-known species is easy of cultivation and well repays the trouble of culture, although the plant requires a considerable amount of room when in flower. I was desirous of having this plant in flower for a local show in June, and I left off tying down the leading shoots in November, 1905, and raised the plant as near to the glass as possible, but no flower scapes appeared until August of last year. As a consequence, however, we have had a charming plant with over 50 inflorescences, with from 15 to 20 bright, flame-coloured flowers on each. It opened its first flowers early in November, and is probably at its best condition now (January 17), though it will remain in flower for some time yet. The plant should be placed near to the glass, and receive a plentiful supply of moisture at all times, a free rooting medium, and an unfettered freedom of growth of the leading shoots. The plants here have been kept in a temperature of about 60°; no fire heat is provided in summer time, but plenty of sunlight and air are then admitted. The plant may be had in flower all the year round, the time of flowering depending on the time the shoots are tied down. H. W., Trevinice.

CYPRIPEDIUM MISS DORA WEBB

(Minos Young's variety x Sander's var. of nitens).

THIS latest, and one of the prettiest, of the now numerous hybrids in which *Cypripedium Fairrieanum* has played a part, is flowering in the collection of Francis Wellesley, Esq., Westfield, Woking (gr. Mr. Hopkins).

In this case the presence of *C. Fairrieanum* comes through *C. Minos Young's* variety (*Spicerianum magnificum* x *Arthurianum*), the latter being derived from *insigne* crossed with *Fairrieanum*.

C. Miss Dora Webb has fine flowers of perfect shape, good substance, and very attractive colouring. Moreover, like most of the other descendants of *C. Fairrieanum*, it flowers in winter when the blooms are most needed, and lasts an extraordinary time in good condition. The large dorsal sepal is pure white, with a small emerald-green base, a broad, dark purple band up the middle, and a very showy arrangement of small purple spotting over the central two-thirds of its area. The petals, which are broad and wavy on the upper edge, are pale greenish-yellow, tinged with purple and slightly veined with the same colour. Lip yellow, tinged with reddish-purple on the face, the infolded side lobes being chrome-yellow, and the interior densely spotted with a dark shade of rose. The whole flower has a shining surface and a very bright appearance.

The value of the *Fairrieanum* crosses as winter and spring flowers has been well demonstrated in Mr. Wellesley's collection, where, in December and January, the following plants were in flower:

PRIMARY CROSSES OF *C. FAIRRIEANUM*.—*Cypripediums* Princess, H. Ballantine, and the fine Westfield variety; *Juno superba*, Baron Schröder, Niobe and its varieties, Oakwood Seedling, luteum, Westfield, exquisitum, Westonbirt, excelsum mag-

nificum, and Gaskellianum; *vexillarium* and its varieties, Rex, Rougeri, and superbum; *Arthurianum* and varieties *pulchellum*, *giganteum*, Stand Hall, Charlesworth's, and Gatton Park; Mrs. de Vere Beauclerk and Germaine Opoix Westfield variety.

SECONDARY CROSSES. — *Cypripediums* Norma Westfield variety, *Priam virginalis*, *Priam Sedeni*, *Minos Veitch's* variety, Lowii, and Westfield variety, *Vexill-Id*, *Imogene*, *Statterianum*, *Bella Westfield* variety, *Little Gem*. var. *Sedeni*, Mrs. Robert Lonsdale (*Arthurianum* x *Lathamianum*), *Epicasta Westfield* variety (*vexillarium* x *oëanthum superbum*), *Lawrenceanum-Niobe*, *Niobe-Leeanum*, *San-Arthur*, *Thalia punctata*, *Thalia gigantea*, and *Thalia* Mrs. Francis Wellesley, the last-named being the most beautiful of the whole collection, and one of the very finest *Cypripediums* yet introduced.

CULTURE OF CYCLAMEN.

THE propagation of *Cyclamen*, whether species or varieties, is effected by seed, which is never in a better condition for sowing than when freshly gathered. The seeds of hardy kinds should be sown in pots, and be germinated in a cool frame. As soon as the seedlings appear, they should be thinned and be grown in a frame until they are ready for planting in their permanent quarters. A well-drained soil is essential for their success, and a sheltered position, where the plants will be somewhat protected during winter, is to be preferred. All varieties reproduce themselves nearly perfectly true from seed, provided the plants are isolated when in flower to prevent cross-fertilisation with other varieties.

Few plants are better for winter and spring decoration of the greenhouse and the conservatory than the florists' *Cyclamen* (*C. latifolium*), and few subjects produce such a fine display of blossom for the moderate amount of care they require. The seeds are best sown in the autumn, although some cultivators sow them in the spring. I consider August an ideal month for their sowing. An ordinary seed pan should be used, which must be clean and be well provided with material for drainage. Three parts fill the pan with a compost of light, sandy soil that should be pressed moderately firm, well watered, and allowed to drain. The seed should then be sown thinly, and be pressed in the soil, and afterwards thinly covered with light, sandy soil. Place a pane of glass over the seed pan, and germinate the seeds in a temperature of from 55° to 60° Fahr. When the seedlings appear, remove the glass cover, and place the pan on a shelf as close to the roof as is possible, to prevent the plants becoming drawn. When large enough to handle, pot them into thumb pots in a compost of loam, leafmould and sand. Next place them on a shelf near to the glass in a temperature of 55°, and spray them lightly several times a day. By the end of January these small pots will be well filled with roots, when the plants should be transferred to pots of a larger size, using 4-inch pots for preference. The same compost may be used as advised for the first potting, but it should be rougher in texture. When the plants have become established, a temperature of 50° will suffice.

Strict attention should be given to the operations of watering, ventilation, shading, and syringing. I do not advocate heavy syringing overhead, but a slight moistening sufficient to promote a strong, healthy growth.

About the first week in May, a frame with a northern aspect and a coal-ash bottom should be prepared for their reception. A sprinkling of soot and lime over the bottom of the frame will help to ward off worms and slugs, which do much harm to these plants.

After placing them in their new quarters, keep the atmosphere of the frame close for a few days, and shade carefully when necessary. Ventilation must be given judiciously and cold draughts

avoided in bright weather light syringings of water will be beneficial. By June the plants will be ready for their final potting; pots 5 or 6 inches in diameter should be used, and perfect drainage must be provided. A suitable compost consists of two parts good fibrous loam (in pieces about the size of a Walnut), one part raky leafmould, and one part old Mushroom manure, with the addition of a little soot, bone-meal, mortar rubble, and sufficient silver sand to keep the whole porous. Never, in any case, use rank manure. Great care should be exercised in potting, for the roots proceed from the base of the fleshy rootstock, and this should be about half covered with soil. Their requirements at this stage consists chiefly in keeping them near to the glass, to prevent weak growth. Apply water liberally and with care. Shade from bright sunshine, and syringe them several

FRUIT REGISTER.

HIGH CANONS APPLE.

This is a medium-sized cooking Apple of irregularly ovoid-conical form, truncated at the top, where it is, more or less, five-sided, yellow, slightly flushed with red on the sunny side. The "eye" or calyx tube is deep, inversely conical, open at the top and surmounted by five spreading deltoid-lanceolate hairy, sepals somewhat reflexed at the point. Stamens from the base of the calyx tube, stalk short $\frac{1}{2}$ -inch set in a shallow basin. Flesh firm, whitish, pleasantly flavoured, slightly acid, core-cells axile.

Our specimens were received from Mr. J. Willard, of the Gardens, Holly Lodge, Highgate, who gives the Apple an excellent character. It is not mentioned in the *Fruit Manual*.

trees on the same wall were Easter Beurré, Beurré Langelier, Old Crassane, Grosse Calabasse, and Van Mons's Léon Le Clerc. Singularly there were trees on the north side of this wall of two late ripening dessert varieties, viz., Ne plus Meuris and Jean de Witte, which regularly bore good fruits that ripened perfectly in due season in the fruit-room. Where the climate is too cool in the summer for these late varieties to thoroughly ripen, even on warm walls, it is wise to plant others about which there is no doubt, and as such I would recommend for late use Glou Morceau, Doyenné du Comice, General Todleben, and Marquise, the latter having a melting, very rich and firm flesh; and Princess, a seedling from Louis Bonne of Jersey, large and handsome, and of fine flavour, both raised at Sawbridgeworth by the late T. Rivers; Charles Ernest, Marie Louise d'Uccle, Beurré Bachelier, Beurré d'Anjou, Chaumontel, President Barabé, Josephine de Malines, Monarch, Prince Napoleon, Nouvelle Fulvie, Olivier de Serres, and Doyenné d'Alençon, all of which mature their fruits on walls facing to the south-west or east, anywhere excepting the coldest districts. F. M.



FIG. 58.—CULINARY APPLE "HIGH CANONS."

times a day. About September, remove the plants to an airy house, for by so doing the flowers will last a long time.

Cyclamen may be prepared for cultivation a second year by withholding water and resting them for a time. A system of completely drying the corms in summer was once practised, but this has now been abandoned by all good cultivators. The flowers are generally earlier, and smaller the second year. An excellent system of treating the second year corms is to place them in boxes of leaf-soil about the middle of June, afterwards potting them as they require it.

The Cyclamen is particularly liable to be attacked at all stages of growth by green fly, red spider, and thrip. Fumigating frequently, but not too strongly, will destroy green fly and many of the thrips. Sponging the leaves, or dipping them in soft soapy water, and afterwards in clean water, is the best remedy for red spider. Jno. Norwood, Panshanger, Hertford.

LATE PEARS.

THE notes on various late ripening dessert Pears in the issue of the *Gardeners' Chronicle* for February 2, p. 67, induce me to give my experiences regarding some of the older favourites among the finest varieties of Pears. With regard to Beurré Rance, it may be stated that, away from the more southerly counties of England and Ireland, it is scarcely worth planting as a dessert fruit; at any rate, it is scarcely edible unless grown on a south wall, and it is seldom that a gardener is enabled to spare a place on this aspect for a Pear, however good it may be, other late varieties being as fine in quality, and more certain to afford excellent fruit in an average season. I have known Beurré Rance in Northumberland afford fruits fit for the dessert in about one year in five, although the tree was placed on a south wall, in a garden about a mile from the sea. Other varieties that seldom furnished eatable fruit from

THE ROSARY.

CULTURAL DETAILS FOR MARCH.

MARCH is usually a busy month in the Rose garden, and unless there is another very severe cold snap as obtained some time ago, all the protective material such as straw, litter, or Fern should be removed. The tender and dwarf Tea varieties that are earthed up can remain thus protected till the end of the present month, when the earth should also be taken away. Strong climbing varieties except Teas and Noisettes, in sheltered aspects, can now be pruned, and should have all weak, dead, and useless wood removed, leaving the strong, ripened growths nearly their full length. A few also of the hardiest hybrids and perpetuals can be pruned, and where there is a considerable number the pruning is best done at intervals in batches, allowing an interval of ten days, commencing in the South from now onwards, and in the Midlands and the North a fortnight or three weeks later. In this way a longer succession of bloom is ensured. Roses should be pruned according to their habit of growth; weakly growers should be cut back to within 3 to 6 buds, and others which are more vigorous can have their growths left longer. Bushes with crowded heads should have their middle growths well thinned, removing especially all unripened and weakly wood. Late planted Roses should be lightly pruned the first year. Pillar Roses should have their oldest stems cut right away and their place taken by the strongest rods of last year's growth. Moss, Provence, Hybrid, China, and other summer blooming Roses only require their superfluous old wood removed and thinned in the late summer after they have flowered. The Austrian and Penzance Briars can be treated in a similar manner. In the China section the old wood should be cut hard back, leaving the young ripened wood of the current year's growth intact.

On early-forced Roses there will now be a goodly supply of cuttings. The growing points can be employed for herbaceous grafting, which should now be in full swing. The bottom of the shoot will be the more matured, and this can be used for cuttings, allowing two nodes to each cutting, but where flower buds are showing, nearly the entire shoot can be used for the same purpose. The cuttings can be placed singly into thimble pots that are filled with sandy loam and leaf-mould. A well prepared hot bed outside is the usual place in which to root the cuttings. This bed, when properly prepared and settled, should not be less than 3 feet 6 inches to 4 feet in height, and a foot margin should be allowed all around the frame to admit

of fresh manure being added if required. Before the pots are plunged, place several inches of cocoanut fibre on the surface of the bed to counteract any excess of moisture and steam that may be given off, and if it is still found there is much condensation, afford a little ventilation at the back of the frame, being careful in doing so not to perceptibly lower the temperature, which, when the frame is put on, should not be lower than from 70° to 75°. This temperature should be maintained until the cuttings are rooted, which will take from three weeks to a month. Protect the frames at night time with mats and shade the cuttings from strong sunshine during the day. The treatment of the pot Roses (not grafted plants) will now be chiefly of a routine character. More ventilation must be given with the advance of the season, and the atmosphere must be kept more humid to correspond with increased evaporation. A frequent application of the syringe is desirable to keep down aphids. The potting of grafted plants into 5-inch pots can still be proceeded with until the whole batch is potted. Pot Roses, when nearing the flower-bud stage, should be given liquid and other manures. The following is a list of the most vigorous and free-blooming decorative varieties of Roses. They are classed in their different shades of colour as near as is possible, and are all free-blooming decorative varieties of hybrid perpetuals, except those marked H.T. Scarlet, crimson, and dark red: Beauty of Waltham, Alfred Colomb, Captain Hayward, Marie Baumann, Dupuy Jamain, Abel Carriere, Mme. Victor Verdier, Victor Hugo, Duke of Edinburgh, Duke of Teck, General Jacqueminot, and Prince C. de Rohan. Red and pink shades: Madame Testout, H.T., Capitaine Christy, H.T., La France, H.T., Francis Michelon, Hugh Dickson, Mdle. Eugenie Verdier, Countess Rosebery, Marchioness of Downshire, Mrs. Sbarman Crawford, Countess of Oxford, Mme. Gabrielle Luizet, and Victor Verdier. White and blush: Violette Bouyer, Boule de Neige, Margaret Dickson, White Baroness, Marchioness of Londonderry, Alba Rosea, Mdle. Bonnaire, Mme. Lacharme, and Merveille de Lyon. J. D. G.

FOREIGN CORRESPONDENCE.

TENERIFFE.

JUNIPERUS CEDRUS.—I continue to take a keen interest in this rare tree of ours, almost doomed to extinction, and trust that the following practical observations may be welcome to your readers:—

(1) The difficulty of germinating the seeds has been quite overcome by soaking the extracted seeds in plain water for several days (a fortnight). Mr. Correvon, of Geneva, managed to germinate all the seeds I sent him (about 100, which is a great triumph). His idea was to have oxygen in the water. For all practical interests my way of soaking in plain water answers, considering that before use it was quite a rarity to get a single seed to germinate if sown with the berry. I have an idea that the reason why this tree inhabits exclusively the highest peaks of the Canaries is because the snow in winter which covers our highest mountains must have some effect in preparing the berries and enclosed seeds for germination.

(2) My experience with cuttings of this Juniperus is, I think, noteworthy. I took the cuttings from a young tree about four years old, and put two cuttings over a year ago in ordinary soil in the open air in pots. One died after having lived nearly a year, and the other has now roots over one year after planting!

Another lot of cuttings was inserted last February, also in the open air in boxes, but with coarse sand in the soil. A fair number have produced roots, and a few are still alive, but without roots. It strikes me that it could easily be propagated in this way in Government nursery beds in your colonies. From one young tree a good many cuttings could be obtained. At any rate, in the mild climate of Puerto Orotava, with a mean temperature of 65° Fahr., no hothouse is needed to make the cuttings strike roots. George V. Perez.

A PIPE PLANT.

THE idea of being able to grow our own pipes in a limited space in our own gardens is one so novel and likely to be so attractive to gardeners generally, many of whom are patrons of the "weed," that I shall probably be excused for occupying a portion of the valuable space in the *Gardeners' Chronicle* for the purpose of drawing attention to what may become a home industry. The Imperial Commission of Agriculture in the West Indies is reported in the *Agricultural News* of Barbados for December 15 last to be endeavouring to obtain seeds of what we may call the new pipe-plant, for trial in the West Indies. My first acquaintance with the new pipe was made about six or eight months back, when I was shown one which had been brought home by a friend from the Cape. It was described as a South African Calabash, or Gourd, lined with some substance said to be meerschaum. As the smaller Gourds are often used for pipes in tropical countries, I was not specially attracted by this particular pipe, except for its lightness, and I attributed it to the well-known *Lagenaria vulgaris*. More recently, however, in the catalogue of one of the largest of English tobacco and pipe merchants, I found the "South African Gourd pipe" spoken of as being in extraordinary demand in England, so much so that the stocks in the market had run very low, but at the present time regular consignments of genuine Calabash pods (so-called) were arriving apparently in the raw state, as the pipes are said to be "hand finished" in this country. Externally, the pipes have an exceedingly smooth surface and a pale yellow colour, closely resembling meerschaum. They are chiefly lined with what is described as "manufactured pressed meerschaum," which is



FIG. 53.—THE CALABASH PIPE.

probably plaster of Paris, and mounted in silver. They vary in price from 4s. to 30s. each, according to the nature of the mounting and the lining, the more costly pipes being said to be lined with real meerschaum. The advantage of these pipes over the ordinary wood pipes is said to be their porous nature, so that the nicotine is readily absorbed, thereby ensuring a clean, cool, dry, and consequently a hygienic pipe.

To turn to the commercial aspect of this new article, it will be interesting to quote the following from the *United States Monthly Consular Reports* for November, as given in the *Agricultural News* before referred to. The writer says: "Smokers who have used the Calabash pipe agree that it gives a special softness of flavour that pipes of no other material offer. I believe this to be so, and that the demand for such a pipe in the American market would be very large. The Calabash should be grown in the United States, and, to this end, seed has been promised, which, when supplied, will be transmitted to the American Department of Agriculture. The Calabash pipe industry is proving a very remunerative one in Cape Colony, both to the growers of the Calabash and to those engaged in making it into pipes, and also to the retail sellers. It grows in certain sections of Cape Colony with little difficulty, but seems to demand a very hot and dry climate, with rain at the right season of the year, in order to reach perfection. The curved stem end of the vegetable forms a light and appropriate shape for

pipes. At colours like meerschaum, and will take a high polish. The duration of the life of one of these pipes is about the same as that of a French briar-wood pipe. The usual lining is plaster of Paris, called by the trade meerschaum. A cheap grade is lined with tin. These pipes sell from 97c. to \$2.25, according to type of finish. Pipe mounting and fitting being cheaper in England than in Cape Colony, large shipments are made to England for mounting and returned for sale. The industry is being crippled in South Africa by the growers refusing to sell the seeds of the Calabash. It is extremely difficult to obtain them from any source. The crop last year was estimated at 60,000, and this year (1906) at about 150,000, but next season's prospects are not so good." It is further stated that 20,000 of these Gourds have recently been purchased by an American business man from Cape Colony farmers for exportation—presumably in incomplete pipe form, to the United States.

Whether the pipes are really made from a Gourd—that is, from a Cucurbitaceous plant, and, if so, from *Lagenaria vulgaris*, or from the true Calabash (*Crescentia cujete*) I am unable to say, as I have not had an opportunity of seeing the fruit in the rough or natural state. The probability of its being *Lagenaria* is very great, as these Gourds are commonly used in many parts of Africa, as well as in other tropical countries, for bowls, spoons, and other domestic articles, and they can be fashioned into any form by growing in moulds, as is done in China and Japan in the formation of ornamental water bottles. So that, notwithstanding all the pipes at present in the market are of the shape we figure, various devices may suggest themselves to the coming pipe-grower, whether in Cape Colony, America, the West Indies, or in England. John R. Jackson.

THE COUNTRY GARDEN.

Know what you expect to get, and what you want from each section or portion of the garden, and where possible let one portion help another. For instance, the character of a walk may enhance the beauty of the part of the garden to which it leads; but too often it is absolutely indifferent to it.

You must, if the garden be a large one, secure varied features. It is not enough to vary the kinds of plants in the different borders as I suggested in my last article; but, also, different phases of gardening must be represented. I have seen a moderate sized and decidedly uninteresting garden gain greatly in character, in interest, and in boldness of effect, by turning a small portion of it into a well designed and well placed rock-garden. It meant a great deal in the general bold picturesqueness of the whole. It meant a new character of plant-life, with distinct and characteristic habits of growth, and the introduction of bold and artistic setting. Why, the setting alone was worth a good deal, and in this case the position chosen for the site gave this its full value.

Other features suggest themselves—the Rose garden, the Fernery, the bog garden, the water garden, the wild garden, the woodland garden—and, I would add, whether one or all of these come to be represented, make a vigorous attempt to give to each one its own true character. Do not let them be either one thing or another, but let each one be bold and distinct. Of course, the bog and the water garden may be more or less combined, and the woodland garden will also, probably, be a wild woodland garden—well and good—these things have congruity. The error comes in when we try to make the rock-garden partake of the nature of a bit of formal bedding, or when a Fernery and rock-garden are combined. The aspect that suits the Alpine and other rock-loving plants is not that which we would choose for the majority of our Ferns, so that such a combination lacks congruity and all sense of fitness. There are

certain shade-loving plants—the Foxgloves, some of the hardy Primulas (Cyclamens), and such subjects as Woodruffe, and some of the early-flowering bulbous plants that may be introduced in the Fernery with charming effect, especially if it be a woodland Fernery; but great discretion needs to be used, and flowering subjects should only be introduced just so far as they enhance the beauty of the Ferns. In a Fernery the Ferns should be the dominant feature. I should not have ventured to call attention to points such as these had I not been from time to time struck with them, and even in large and important gardens.

As a character-giving and decorative feature, I look upon the rock-garden as one of great importance. The bolder and simpler the ground plan and general design, so much the more effective, and it adds greatly to its artistic possibilities if a pathway can run through it, and not merely beside it. To have the same character of planting on both sides of a pathway makes for picturesqueness and a sense of delightful repose and harmony. This applies, I venture to think, to all portions of the garden. A pathway, for instance, with a flower border on its one side and grass on the other, has far less beauty, and lacks a sense of completeness, than one that gives us its quota of colour on both sides. The grandest effect in the rock-garden is usually from the early spring to the end of June or thereabouts. After that, many rock-gardens become rather shabby and forlorn for many months. This, surely, is to be deplored, for while the summer finds the rest of the garden at its gayest, the lack of brightness here is the more noticeable. Some of the best of the late dwarf Campanulas, many of the Nelums, and such a striking subject as *Potentilla nepalensis*, go far to furnish the rock-garden with summer colour. And besides these plants of perennial growth, much can be done by growing some annual plants that are especially adapted to this use. Among the most treasurable is *Mesembryanthemum tricolor*, especially for some hot sun-smitten position. It is a gem of the first water, and it is worth while to make at least a couple of sowings at intervals of a fortnight. Another plant that can be strongly recommended for this use is *Oenothera triloba*, syn. *O. rhizocarpa*, and there is the extremely dwarf *Ionopsidium acaule*, that would seem to have advanced this last season or two very greatly in public favour. There is also a bedding plant that may be introduced to the rock-garden to yield a brilliant patch of colour from June until December—I mean the *Gazania splendens*. It seems to take on a new beauty in such a position, and is very effective. With a little care the rock-garden may be as beautiful as the rest of the garden during the late summer and autumn. *Practical Gardener*.

ODONTOGLOSSUM WATTIANUM PRINCEPS.

THE illustration at fig. 60 represents a flower of this remarkable variety of the cross between *O. Harryanum* and *O. Lindleyanum*, which was first imported as a natural hybrid, but which in the present instance was home-raised by Messrs. Sander & Sons, of St. Albans and Bruges, who showed the plant at the meeting of the Royal Horticultural Society, February 13 last, although it was not submitted to the Orchid Committee. The flower illustrated is of natural size, the sepals and petals were pale yellow heavily blotched with chocolate-purple. Lip white with violet markings at the base. In our issue of October 20, 1900 (p. 286), we illustrated the first variety of this cross raised in the gardens of De B. Crawshaw, Esq., Rosefield, Sevenoaks, who thus proved the correctness of the reputed parentage of the original natural hybrid.

NOTICES OF BOOKS.

MITTEILUNGEN DER DEUTSCHEN DENDROLOGISCHEN GESELLSCHAFT, 1906 (Transactions of the German Dendrological Society). Editor, Graf v. Schwerin, President of the Society. Publisher, L. Beissner, Royal Garden Inspector, Bonn-Poppelsdorf.

We have in this account of the doings and varied activities of the Arboricultural Society of Germany for the year 1906 a great mass of most useful information. The "Mitteilungen" consist of articles written on trees, chiefly of exotic origin, that have been tried in various parts of the country to ascertain their commercial value, hardiness, durability and good quality. The first paper in the volume is concerned with

quite hardy in Germany. *Prunus serotina* is a failure in peaty and distinctly wet soils, but succeeds in any other, either wet or dry. The tree is recommended for its use in house carpentry, for its hardness and handsome light reddish brown colour; and for these reasons it is imported in large quantities. The advantages of growing the tree in Germany are the lessening of the importations; the possibility of turning poor, dry, sandy soils into good paying ones; filling gaps occasioned by drought in existing woods by a strong-growing, valuable tree; and affording abundant food for useful birds. The plant is obtained from imported seeds, and as the tree fruits at an early age home-grown seeds will be soon available. The article finishes with a brief account of other species of *Prunus*.

A very interesting list of new and rare shrubs



FIG. 60.—ODONTOGLOSSUM WATTIANUM PRINCEPS.

Prunus serotina of Ehrhardt, and is the work of Fritz Graf von Schwerin, who, *en passant*, corrects the faults into which various authorities have fallen in confusing this species with *P. virginiana*, which, on account of its red fruits, has been named *P. rubra* in some gardens. He furnishes a full description of the tree, and a figure is given of a specimen growing in the Palace Garden of Rastede, in Oldenburg, which is 76 years old, and has a height of 15 metres, and a stem of 2.35 metres at 1 metre high. Although the seeds which have reached Germany come from the more southern United States of North America, there has been no known case of a tree of this species having been injured by frost, and the tree may be as capable of acclimatisation as, for example, the Græian *Acer Heldreichii*, which, in spite of its southern habitat, is

growing in the Botanical Garden at Darmstadt is supplied by the Grand Ducal Garden Inspector Herr A. Purpus. Among these are some that are unknown in gardens in this country, three of which are illustrated, viz., *Euptelea polyandra* (Siebold and Zuccarini), a bush with metallic, glistening foliage. It belongs to the Trochodendraceæ, is native to Japan, and is hardy at Darmstadt. Further, *Euonymus planipes* (Kœhne), a grand ornamental shrub from Japan, with long-stalked fruits of a red colour; and *Fallugia paradoxa* (Endlicher), collected by C. A. Purpus in the San Francisco Mountains, Arizona, a charming bush which flowers the entire summer. The flowers are white, and resemble those of *Dryas octopetala*. An excellent subject for planting on sunny rockeries.

Mr. John Booth replies at length to the

question put by the president in 1905 concerning the behaviour of ten species of exotic forest trees. Space allows us to mention only the names of the species he favours: Douglas Fir, Weymouth Pine, *Juglans nigra* (American Walnut), *Prunus serotina*, *Carya alba*, of which tree an example 100 years old exists in Carlsruhe, and there are others elsewhere; *Quercus rubra*, *Populus canadensis*, some of the *Acacias*, and the Tulip tree.

A most interesting and instructive paper is that furnished by Herr. T. J. Seidel on the crossing, acclimatisation, and cultivation of the *Rhododendron*. As is pretty well known, the severity of the winter, and the heat of summer in Germany at any distance from the sea coast, and in some parts (as at Grüngärben) night frosts throughout the summer months, make the cultivation of the finer species and varieties of *Rhododendrons* an impossibility out of doors. There is not alone the winter's cold to contend with, but furious winds, and, consequently, only varieties should be sought for in the crosses which possess strong leaf-stalks and small thick leaves, and of such good species and varieties are found in the Caucasian *R. Smirnowii* and *R. arboreum-Catawbiense* hybrids. M^{rs}. Miller and Jay Gould belong to this last-named class. The hybrids from *R. Smirnowii* are absolutely hardy. *R. Catawbiense* hybrids have likewise proved hardy in a garden at Schmiedeberg on the Riesengebirge, at a height of 1,500 metres, withstanding cold and storms, and flowering beautifully in the spring. A great mass of information regarding methods to be adopted in raising hybrids suited to the climate inland is afforded. The warm sun on bright days in winter and the succeeding frosts at night do more harm than cold alone; and those species apparently hardy, which make early growth, suffer from late spring frosts.

Conifers are treated at some length by no less an authority on this family than Herr. L. Beissner, who takes as his first note Mr. A. C. Bartlett's communication respecting *Picea Morinda* in *Gardeners' Chronicle*, 1905, p. 395, and of the note on *P. Morindoides*, *Gardeners' Chronicle*, 1906, p. 132, in which the points of difference in the two species are commented upon. He then goes seriatim through many Caucasian species of *Abies*, *Junipers*, *Taxus baccata*, *Biota*, *Pinus*, *Picea excelsa* varieties, giving the names of places where the trees are to be found. Descriptions of numerous new species of Conifers are given briefly, and authorities carefully acknowledged, and special thanks are expressed for the valuable assistance afforded by the Editor of this journal.

We have a chapter on hardy species of *Rhus* by Herr. L. Graebner, together with a coloured map of the habitats of the North American species, and photographic illustrations of several of the more attractive species.

The geographical distribution of American *Cupuliferæ*, and characteristic forest trees, and a mass of brief communications on arboricultural matters form the concluding portion of the book. F. M.

THE MODERN CARNATION.—How to Grow and Show it. By Hayward Mathias and P. Smith. Price 3s. 6d. Burnley: Horticultural Printing Co.

The authors offer as justification for the publication of this little manual that it supplies "small items of routine hitherto considered unworthy of notice" in the numerous books on the *Carnation* which have appeared in recent years. There are nine chapters in all, of which those on "Growing for Exhibition," "Dressing and Staging," and "Americans" are most worthy of attention. It is a book that one can recommend to the novice who is ambitious to grow blooms for exhibition, and there is a kind of freshness in the authors' style that he will find to be fascinating.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence Bart., Burford, Surrey.

Anectochilus.—Amongst Orchids now about to start into growth are the handsome leaved *Anectochilus*, which include such varieties as *A. Dawsonianus*, *A. Sanderianus*, *A. Rollissonii*, *A. petola*, *A. setaceus*, *A. Lowii*, *A. Roxburghii*, *A. striatus*, &c. The flowers are insignificant and of no importance, but the marvellous beauty of the leaves entitle these plants to the consideration of those who appreciate lovely plants. For several months past these species have been in a dormant state, but now the leading growths are starting to develop fresh leaves, the plants will require to be kept slightly moist at the root. Immediately new roots appear, the leading growths may be severed to about 3 inches in length, and be potted singly into small pots, using a mixture of chopped sphagnum-moss freely intermixed with small crocks and silver sand, afterwards plunging the pots as closely together as possible in a large pan filled with sphagnum-moss. A bell-glass of a suitable size with a hole at the apex may be placed over them, affording air by tilting the glass a little on all favourable occasions. At Burford we find these severed pieces grow very well when planted in the surface moss of the *Aërides*, *Saccolabiums*, &c., which have lately been re-potted, and throughout the growing season they share the same treatment as is afforded to those plants. After taking off the leading growths, the back pieces, if laid upon some damp moss, will in time produce young plants.

Evergreen Calanthes.—Such plants as *C. veratrifolia*, *C. Masuca*, *C. Dominiana*, &c., which are now in full growth and sending up flower spikes, require considerable water at the root, and an occasional application of weak liquid cow-manure will be beneficial if the pots are well filled with roots. These remarks are also applicable to such species of *Phaius* as *P. bicolor*, *P. Blumei*, *P. grandifolius*, *P. Norman*, *P. Marthæ*, &c. All these plants thrive best in a shady part of the Cattleya house. The cooler growing varieties as *Calanthe japonica*, *C. citrina*, *C. discolor*, *C. natalensis*, *C. curculigoides*, &c., require a similar position in the intermediate house, which is at all times several degrees cooler than that of the Cattleya division. Whilst growth is being made they must be well supplied with water at the root.

Bletia hyacinthina and its variety *alba* require similar treatment to that recommended for *Calanthes*, but should be elevated to a lighter position in the house, and, being deciduous, require a decided rest during winter. The new growths are now pushing up, and if necessary the plants may be re-potted. They grow freely in well-drained pots in a mixture of fibrous loam, adding a little chopped sphagnum-moss, small crocks, and coarse sand.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Watering.—It may appear full early to write on such a subject, but comparing the first seven weeks of the present year with the corresponding ones of 1905, rain equal to only a third has fallen this year, and this seems pretty general. December last was also far from being a wet month. Taking these facts into consideration, it will be wise to test the borders in which Peach and Nectarine trees are growing, for these fruits quickly feel the effects of a dry root medium, and this is often the cause of their dropping many of their buds. Should the borders be found to be dry, afford a thorough watering, and repeat this in a month's time, if the rainfall still continues to be slight. Much will also depend upon the quarter from which the rain comes, and whether the borders have received much or little of the moisture that has fallen. Other kinds of fruit trees do not suffer in such a marked degree as do those mentioned above, yet all stone fruits growing against warm positions on walls will be benefited by a good watering in such a dry season as this.

Blossom protection.—The return of milder weather is causing the sap to ascend, and the

tiny pink and white blossom buds of the Apricot will soon be expanding, and especially so in the warmer counties. It is absolutely necessary, therefore, except in the case of trees in a few favoured spots, to erect some sort of protection sufficient to ward off hail and sleet, and to break the force of the cold-cutting winds usually experienced during the present month. Apricot trees growing against cottages, farm buildings, &c., are often found carrying good crops of fruit, whilst trees on garden walls, carefully protected, have but few. The warmer and drier surroundings of trees in the first-named spots probably accounts for this extra cropping. Removable coverings of some material such as tiffany are by far the best means of protecting fruit trees, but excellent crops of Apricots, Peaches and Nectarines are often had by merely protecting the blossom with one or two thicknesses of ordinary twine netting, erected as soon as the first few flowers open, and allowed to remain until the foliage acts as a shelter for the tiny fruits. Whatever protection is afforded, it must be kept clear of the trees, and should hang from a coping at the top of the wall, or from some similar projection: an 11-inch deal board, placed at an angle of 25° to 30° from the top of the wall, will answer the purpose well. Pieces of quartering or stout stakes should be placed every 10 feet, with the foot 4 feet from the base of the wall, and allowed to rest at the top against the coping. Light branches of Spruce Fir are sometimes tied on Plum and Pear trees trained against walls, but they must be put on very lightly or more harm than good will result. Bush and pyramid-trained trees in the open are sometimes protected with scrim canvas or hexagon netting.

THE KITCHEN GARDEN.

By WILLIAM HONFESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Onions.—The ground intended for the sowing of the spring crop of this vegetable should have been well manured at the time of digging, and should now receive a dressing of soot and salt, which should be well worked into the soil. The seed should be sown in shallow drills, drawn from 9 to 12 inches apart, according to the general size of the bulbs of the varieties to be sown. Such standard kinds as Ailsa Craig, Bedfordshire Champion, James' Keeping, Brown Globe, Magnum Bonum, and Improved Queen, for pickling, may be recommended. Onions that were sown in heat in January or early in February will soon require transplanting into other boxes or into a frame close to the glass. This shift, though not absolutely necessary, will give better results than if the seedlings are planted from the seed boxes.

Parsnips.—If seeds of these have not already been sown, sow at once in drills 18 inches apart on ground that has not been recently manured such varieties as the Student and Hollow Crowned. If the land was lately manured and the material was deeply buried, it may be used for Parsnips, but if the manure is near to the surface, the roots will become branched, and a very unsatisfactory crop result.

Leeks and Parsley should also be sown.

Globe Artichokes.—As the weather becomes milder, remove the litter that was placed about the plants for protection, for the plants should now be exposed to all the light and air possible to strengthen the suckers before they are required for planting by the end of the month. In the south a second planting might be made early in May, and if the stools are kept well watered throughout the summer they will furnish a supply of good "heads" throughout the autumn, after the earlier ones are finished. This is an excellent plan of increasing the stock of these plants, and with ordinary care it is generally successful. The suckers should be planted on liberally prepared ground 3 feet apart in the rows, having a space of 4 feet between the rows.

Seakale seeds should be sown during the present month. If the plants are intended for filling gaps in existing beds, the seeds should be sown in rows 1 foot apart, but if required to form a bed where they are sown they should be inserted in triangular patches of three, 2½ feet apart each way, and on rich light ground. Young plants will often give good results the following winter if sown steadily, and towards the end of the season.

PUBLIC PARKS AND GARDENS.

By W. W. PATTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Springtime.—The most interesting time of the year in the public park, as in the private garden, is fast approaching, and visitors will soon have many things to attract and please them, as each day adds a little more life and brightness to park scenery. Hazels and Willows, early-flowering species of Erica and Snowdrops—which, in this part of the country, are now at their best—all give their quota of beauty and indicate that springtime is at hand. The Crocus will soon be with us again, and in a very few weeks more we shall be in the midst of all the glories of Daffodil time. After the dark days of winter the appearance of the spring flowering plants are the more appreciated by visitors, who find in them a great source of delight. For this reason spring-flowers should always be made as prominent a feature as possible in every park suitable for the purpose. Since it has become customary to naturalise these in swards, among trees, and in the waste parts of our pleasure grounds, the beauties of parks, &c., in springtime have been greatly increased. The formal designs, with their masses of one or two colours, become almost distasteful when compared with the same kind of plants growing haphazard among grass. In small, formal gardens, where the grass is always kept closely cut with a mowing machine, it is, of course, quite out of the question to naturalise bulbs in the sward, so, rather than do without them altogether, it is very much better to grow them in beds and borders.

Naturalised spring-flowering plants need not necessarily be confined to such parts of the grounds as are covered with grass. I have seen places which in summer are nothing but thickets of brambles and such-like plants, in springtime developed into beautiful pictures by being clothed with Bluebells (Scilla), Wild Anemone, and Anemone fulgens. To permit these being seen and appreciated it is necessary, about the end of December, to clear away all bramble and other vegetable growths which have accumulated during the year. This clearance also enables the Anemones and Scillas to become thoroughly matured before the ground is once more overgrown with vegetation. Autumn is the season for planting the bulbs, but the early part of the year is by far the best time for considering and noting any alterations or additions that may be necessary to make to already existing groups of bulbs, and the selection of suitable sites for new plantations of them. Sloping ground is most suitable for the naturalisation of spring-flowering plants. A fairly long succession of bloom can be maintained in grass and on the rougher and "unkept" portions of the park by using such plants as Snowdrops, Crocus, Muscari, Daffodils, Anemone fulgens, Scillas, and Tulips. The latter, on account of their brilliant colours, form beautiful subjects for naturalising, but as they deteriorate more quickly than any of the other plants mentioned, they require renewing very much oftener.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Annuals.—A sowing of Shirley Poppy should be made at the first opportunity in the open ground, selecting a warm spot and a not too rich soil for their reception. If sown in over-rich ground the plants will form leaves at the expense of the flowers, which will be fewer and inferior in colouring. As soon as the seedlings are large enough they should be thinned to at least 5 inches apart.

A first sowing of Mignonette should also be made on a warm border, paying due regard to the thinning of the plants as they grow. Successional sowings should be made of both the above-named plants. Other annuals which may now be sown out of doors, either for a border display, or for supplying flowers for cutting, include the several forms of Cornflowers (Centaurea), God-tias (the newer double rose-coloured variety Schamini should not be overlooked), Scabious, Sweet Sultan, Calliopsis, annual Chrysanthemums, Lavatera trimestris, and a selection of ornamental grasses. For furnishing a pretty display on a dry, sunny bank, few things equal the Eschscholtzias. Choose a fine day for the sowing of the seed and prepare a good tilth,

remembering that "the hastening tiller often reaps a bad harvest." When the seedlings are up ply the hoe freely, and rigorously thin out the young plants, for annuals are never seen at their best when grown thickly.

Sow in heat seeds of such plants as African and French Marigolds—the dwarf Legion d'Honneur is valuable either for a groundwork or as a bordering in beds of Lobelia cardinalis; Nicotiana, in variety, Phlox Drummondii, Antirrhinum, Stocks, Chinese Asters, Dianthus, Chamæpseuce, &c. Unless ample room is available, it will be wise to defer the sowing of Zinnias for a few weeks, for if these plants suffer a check, either from a too low temperature or from neglect of transplanting, they will not thrive. A sowing should also be made of such perennials as Gaillardia, Campanula pyramidalis, and Papaver orientale hybrids, to produce plants for flowering next year.

Tuberous Begonias should now be started into growth by placing them in a warm house. The tubers may be placed closely together in boxes of light soil, and, as they grow, they may either be potted singly or be planted well apart in boxes containing suitable soil. Seeds of the same plants should be sown now on the surface of fine soil in seed pots. Place the seed pans in a brisk bottom heat, and shade with pieces of clouded glass.

Cannas, Dahlias, &c.—The stock of these plants should be overhauled, and any varieties which it is especially desired to increase may be brought into a warm house. The main stock of these plants may be dealt with a few weeks later.

Christmas Roses (Hellebore).—Now that the flowering of these plants is over, the frames placed to protect the blooms should be removed. Stir the surface soil about them with a hand-fork, remove all weeds, and apply a good top-dressing of well-rotted manure. The present is a suitable time to plant Hellebores, and as these plants resent frequent disturbances at their roots the work should be thoroughly well done, and the soil deeply dug and enriched with cow manure. When transplanting large clumps of Christmas Roses it is advisable to divide them and to discard the weakened central portion, and to plant only the outside crowns, keeping them somewhat above the level of the soil in planting. [See also p. 24.—Ed.]

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Allamandas.—If not already taken in hand, these plants should be at once pruned, cutting every growth back to well-ripened wood. When this has been done, and if the plants are grown in pots, they should be turned out, and after reducing the "ball" as much as is thought necessary, subject the roots to a thorough soaking in a tub of water. Remove it from the water and let all the water perfectly drain from the roots before repotting them firmly, in a compost consisting mainly of good loam, mixing a little well-rotted manure with it. Place the newly-potted plants in a light position in the stove. The roots will not require to be watered until growth commences, but the syringe may be used freely, and when the plants are in full growth, copious supplies of water will be necessary, and also manurial stimulants, to keep the plants healthy and vigorous under the strain of continuous flowering during the summer and autumn seasons. If the plants are established in narrow borders or large tubs, take off some of the top-soil, and apply a top-dressing of loam and manure, afterwards mulching with some cow manure if considered to be practicable. Cuttings of Allamandas will root very readily if taken when the young shoots are about 6 inches long, and placed in the propagating frame.

Clerodendrons.—The deciduous section of Clerodendrons, of which C. Balfouri is about the best, should be pruned and treated in much the same manner as recommended for Allamandas, subsequently potting or top-dressing the plants as they may require. C. fallax is the best shrubby variety, and may be propagated with ease, either by cuttings, or from seed. The plants should be grown in the stove on a shelf near to the glass, in order to keep the growths short-jointed. These young plants, if attended

to in the matter of re-potting when required, will make good plants in one season, and produce nice heads of bright scarlet flowers in the autumn. This variety should not be dried off in the winter to the same extent as C. Balfouri, but rested in a somewhat cooler atmosphere and watered very sparingly, till it is time for the plants to start into growth in spring, when they may be re-potted and cultivated into large specimen plants.

Gardenias.—The main batch will now be showing bloom, and may be stimulated at regular intervals with a "pinch" of some good artificial manure. See that the plants do not suffer from lack of water at any time, as this would probably cause the buds to turn yellow and fall off. Examine the plants carefully for insect pests. If mealy-bug or scale once get established, they will be difficult to eradicate. Paraffin emulsion is a capital preparation for cleaning Gardenias, Stephanotis, and similar plants.

Bougainvillea glabra, having been pruned and cleaned, will now be growing strongly. Re-pot any plants it is desired to grow into large specimens, and if increase of stock is desired, cuttings may be taken of the young shoots, and inserted in light sandy soil, and placed in the propagating pit.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Early Pines should still be allowed a steady bottom-heat of 85°, and plants which are now starting into growth and the more forward ones that are showing their fruits will require careful watering. Keep them moderately moist at their roots, and on no account allow them to become dust dry. As the days lengthen, and the sun's rays become more powerful, a higher temperature of from 75° to 80° should be maintained in the pits at night time. Allow a little ventilation when the weather is favourable. Damp the paths three or four times daily in order to produce a moist atmosphere, and close the pit when the temperature falls to 90°. Later plants intended for successional fruiting should have the temperature of the house in which they are cultivated increased to 65°, with a bottom-heat of 70°. Open the ventilators slightly daily, and maintain a humid atmosphere in the pit, remembering that the warmer the weather is the more moisture will be absorbed and evaporated. Attend to autumn-potted suckers, and turn them out of their pots, and if they are found to be well rooted, re-pot them in larger pots, using as a potting medium turfy loam chopped into small pieces. When re-potting is finished plunge the plants again in a bottom-heat of 76°.

Peaches and Nectarines.—These fruit-trees should be cautiously forced during cold, sunless weather. For the present the temperature should not be allowed to exceed 55° to 60° at night time, with, including sun heat, 10° to 15° higher by day. These temperatures will suffice until the fruits reach their second swelling stage. Admit air daily by the top ventilators whenever the weather permits. Syringe the trees during the morning only, as moisture lying about the house late in the day is favourable to the growth of mildew, but evening syringing may be permitted when the temperature is very high. Disbud forward shoots and thin the fruits by degrees. Test the border, and if it is found to be dry, give a good watering with tepid manure water not too strong.

Tomatos.—Plants of early batches in pots should now be given a top-dressing of loam, leaf-mould, and a handful of plant food, well mixed together. Maintain a temperature of 65° by night time, and 70 to 75° by day in the pit in which early Tomatos are grown, and as the days lengthen, increase the amount of ventilation, to ensure sturdy, short-jointed growth. Seedling plants should, if not already done, be potted into thumb pots, using a compost of fresh loam, leaf-mould, with a little sand added. Place the soil in the pit to warm before it is used. Plunge the pots in a gentle bottom heat, until the seedlings have rooted in the compost, when they must be removed to a shelf near to the glass, where they can remain until they are transferred to larger pots or boxes. Make another sowing for a later supply. Place the seed-pan in a gentle bottom heat, in which the seeds will soon germinate.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MARCH 2—
Soc. Franc. d'Hort. de Londres meet.
German Gard. Soc. meet.

TUESDAY, MARCH 5—
Roy. Hort. Soc. Coms. meet (no general exhibition).
Scottish Hort. Assoc. meet.
Nat. Amat. Gard. Assoc. meet.

THURSDAY, MARCH 7—
Linnean Soc. meet.
Manchester & North of England Orchid Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—40°1'.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, February 27 (6 P.M.): Max. 49°; Min. 48°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, February 28 (10 A.M.): Bar., 30°5; Temp., 42°; Weather—Dense fog.

PROVINCES.—Wednesday, February 27 (6 P.M.): Max. 46° Bury St. Edmunds and S.W. Ireland; Min. 42° Bristol.

SALES FOR THE ENSUING WEEK.

MONDAY—
Roses, Azaleas, Liliums, Border Plants, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY—
980 cases Japanese Liliums, also Miscellaneous Bulbs and Plants, by Protheroe & Morris, at 1.

WEDNESDAY—
Border Plants and Bulbs, Azaleas, Rhododendrons, Palms, Liliums, &c., at 11; Roses and Fruit Trees at 1.80 and 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.
Plants, Roses, and Lilies, at Steven's Rooms, King Street, Covent Garden, W.C., at 12.30.

THURSDAY AND FRIDAY—
The "Shirley Grange" Collection of Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

FRIDAY—
Azaleas, Perennials, Hardy Bulbs, Liliums, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

The West Indies.

The last mail has brought us information which we were eagerly awaiting from Jamaica, Barbados, and Trinidad. So many of the participators in the Agricultural Conference, such as Sir Daniel Morris, Mr. Fawcett, Mr. Hart, are so well known in the home country, and some of them are so well known to our readers as contributors, that anxiety was naturally felt on their behalf. Happily, we are enabled to say that they escaped injury.

The President (Sir Daniel Morris) and representatives of the sixth West Indian Agricultural Conference, including delegates from Barbados and other West Indian islands and from British Guiana, it appears, arrived at Kingston, Jamaica, in the Imperial Direct West Indian steamship "Port Kingston" at daybreak on Friday, January 11, when they were met by His Excellency the Governor, the members of the Reception Committee, and a large number of the principal officials, men of business, and planters of the Island.

Arrangements had been made for a number of excursions to various parts of the island. One party paid a visit to St. Catherine to see the Banana, Rubber, and Citrus cultivations and the Cassava starch factory at Eltham Park. The Vere district was visited by another party, where opportunities were obtained of seeing Banana

cultivation under irrigation, and the Cotton cultivation of the Vere Estates Co., Ltd. After the Sugar works at Money Musk had been inspected, the party proceeded to the Citrus grove of Dr. Tillman, at Camden, which is probably the best of its kind in the West Indies. On the return journey the representatives were able to see the new central Sugar factory which is in course of being erected at Parnassus.

On Monday, January 14, the Conference was opened at the Old Mico schoolroom in Kingston by His Excellency the Governor, Sir Alexander Swettenham, K.C.M.G., who expressed his great pleasure in welcoming to Jamaica the Conference delegates and the influential and distinguished company brought out from England by Sir Alfred Jones.

Sir Daniel Morris then delivered his presidential address. He said it was a source of satisfaction to him that it had been possible to arrange for this Conference to be held in Jamaica, where he had spent some of the best years of his life, and in which he continued to take deep interest. Probably, in no part of the tropics could be found such diversified industries as existed in Jamaica, and it was, in consequence, singularly favourable as a meeting place for those interested in agriculture.

In the course of a review of the agricultural conditions of the West Indies since the last Conference, held in Trinidad in January, 1905, the President stated that progress was being made in every direction. New industries were being added, and old industries were being revived and developed. Referring to the general anxiety felt throughout the colonies where Sugar is a staple, as to whether the Brussels Sugar Convention was likely to be continued, he announced that after careful consideration he had decided to appoint a committee consisting of representatives closely connected with the industry, which would prepare replies to certain pertinent questions. Attention was also drawn to the position and prospects of West Indian Sugar in the Canadian market. This was followed by a review of efforts to extend the cultivation of Cacao and Citrus fruits in Jamaica. The value of Cacao exported from Jamaica in 1906 was £75,000; of Citrus fruits £99,689.

In regard to the Cotton industry, the President pointed with reasonable pride to the rapid progress that had been made during the last four years. There were now 18,000 acres in the islands under cultivation in Cotton; of this, 15,000 acres were planted with the best varieties of Sea Island Cotton that commanded the highest prices on the English market. The value of the Cotton lint and seed exported from the West Indies was estimated at £200,000. References were also made to the Rice industry of British Guiana, now of the annual value of about £218,000, and the cultivation of Rubber trees in British Guiana, Trinidad, and Tobago; also to the prospects of extending the Jamaica Tobacco industry and of the preparation of Cassava starch on a commercial scale.

In acknowledging the vote of thanks proposed by the Archbishop of the West Indies, Sir Daniel Morris referred to the valuable and loyal services rendered by Dr. Francis Watts, C.M.G., Mr. J. R. Bovell, F.L.S., and the other officers of the Department.

The business of the Conference was then proceeded with, Mr. Cousins and Dr. Watts reading papers on seedling Sugar canes. Mr. Bovell was addressing the Conference on the same subject, when the proceedings were brought to an abrupt conclusion by the fearful earthquake that occurred. Barbados papers contain full accounts of this appalling catastrophe, details of which need not be repeated here. It may be merely stated that Mr. Bovell was dealing with statistics "when

there came a rushing sound as of a troop of cavalry passing a neighbouring street, which changed to the roar of a train entering a tunnel. Then the floor began to shake, to rise up, to heave. The whole building oscillated violently." The subsequent details are too harrowing for repetition. Sir Alfred Jones placed his ship, the "Port Kingston," at the disposal of the authorities, and it was made use of as a hospital.

Sir Daniel Morris and many members of the Conference also took refuge on the ship. Sir Daniel, who had given what assistance he could on the Monday night (January 14), exhibited characteristic British tenacity by proposing to resume the proceedings of the Conference on the steamship on the Wednesday morning (January 16), but naturally this was found impracticable, although on the following Saturday the business was actually resumed on board the ship as she was proceeding with the delegates on the way back to Barbados. Papers on the Cotton industry in the various islands were read, and it was recommended that Cotton should be grown in rotation to Sugar.

And thus ended a Conference, the results of which will be important and far-reaching, in spite of the calamitous circumstances by which it was attended.

The receipt of "Addenda to Sander's List of Orchids" affords an occasion to thank Messrs. Sander for the publication of their very useful list. It is divided into three "tables," each table with three columns; in the first column the name of the hybrid is given under its appropriate genus; in the second column is inserted the name of the seed-parent, and in the third the designation of the pollen-parent is registered.

In the second table the same details are given, but differently arranged: thus, the name of the seed-parent comes first, then that of the pollen-parent, and, thirdly, that of the product.

In the third table the names of the pollen-parent are placed first, then those of the seed-parent, and in the third column the name of the resulting crossbred or hybrid. Assuming the correctness of these details, the great value of the record is obvious. The objections to be raised against it depend on the inconsistency and cumbrousness of the nomenclature; inconveniences, we must hasten to add, for which Messrs. Sander are not specially responsible, but which are mainly due to the non-observance of the rules laid down for the guidance of the committees and of raisers in general. These rules have been discussed over and over again, within our recollection, and a general agreement come to at various meetings, but those who agreed to the regulations adopted do not seem to have the courage of their convictions, or, at any rate, they fail to carry out in practice the rules they agreed to adopt in committee. The Orchid Committee in this respect sets a bad example, and does not do what it might do in regularising and reducing to system the erratic nomenclature of which complaint is justly made. Instances are so numerous and so notorious that it is not necessary to cite many of them. We take one as a sample from the list before us, promising that we are not aware whether the Orchid Committee had or had not any responsibility in this particular instance. In Table III. we find the pollen-parent of a par-



Photo by E. J. Wallis.

CHRISTMAS ROSES (*HELLEBORUS*) FLOWERING AMONGST HARDY FERNS
AT KEW.

ticular hybrid entered as *Harryano-crispum*, a hybrid to begin with! The seed-parent is registered as *Rossi rubescens*, a variety, or, preferably, perhaps, a mere variation of a species. Lastly, we come to the name given to the "product," in this case "*Smithii*." In the other tables we find *Odontoglossum Smithii* registered, of course, under the same parentage. Now, so long as the reader has Messrs. Sander's list of hybrids before him, there is no chance that anyone will be misled as to the status of *O. Smithii*. But, it is not everyone who can enjoy that privilege, or, if he possess the list, that he will have it with him for reference at all times when he has occasion to write, or still more frequently, to speak of Smith's *Odontoglossum*.

As it is, the unsuspecting botanist would naturally take a plant named *Odontoglossum Smithii* to be a distinct species, and unless he possessed Messrs. Sander's list, or some similar document, he might waste much time in the futile attempt to ascertain what *O. Smithii* was, where it came from, and where it was described. But if it had been called "*John Smith*," all this time and trouble would be saved. At the same time, if the register was properly kept he would have no difficulty in ascertaining the precise status of "*John Smith*." The importance of keeping an accurate register, always very great, has been enhanced now that so much attention is paid to questions of heredity and variation. Certainly it would be easy to act on the rule which exists already, which forbids the application of a specific name in Latin, to a plant of garden origin. As it is, the name "*Smithii*" stands on a level with "*crispum*" or "*grande*" or that of any other recognised species. Looking down the lists, we find very numerous similar cases, every one of which might have been avoided, if the rule we have mentioned had been obeyed.

Every day we hear complaints about the barbarous Latin names given to plants, but equally frequently we find gardeners and amateurs applying such names in cases where they are not only undesirable but unnecessary, and we find no attempt made by the committees of the R.H.S. to check the practice. They are ready to shout with the multitude, but not to act with the few, and until they carry their precepts into practice, so long will outsiders have reason to rail and protest.

OUR SUPPLEMENTARY ILLUSTRATION.—Do we, writes *W. W.*, show due appreciation of *Helleborus niger* as a garden plant? Where can we find it in quantity amid surroundings that give it a chance to show what it is capable of? Here is a plant as hardy as a dock and as persistent, under ordinary conditions, as the best natured of perennials, which comes into flower in mid-winter and continues to display its charms in spite of all weathers until the Daffodils appear. Here and there one meets with odd clumps of it either in the rock garden or herbaceous border, but they are as ineffectual as odd soldiers are compared with a regiment. Last April, in a note in the *Gardeners' Chronicle* that accompanied a photographic view of Daffodils and Anemones in the Wild Garden at Kew, I mentioned the Christmas Roses which grew in a rough Fern border on the west side of this garden, and stated that 500 more plants had been added on the north-west side. The supplementary illustration to the present issue

gives some idea of the effect of these plants, near and in the distance, in January, when the photograph was taken. The brown and green fronds of the Ferns add a warmth to the combination which the reader must imagine. The display of flowers would have been finer had not many of the buds been picked off by peafowl, which are as mischievous in the garden as they are pleasing to the children and nursemaids, who delight in peacocks' tails and care nothing for Christmas Roses. The only fault that can be found with this *Hellebore* is that of impatience of transplanting; it takes at least two years to recover from the effects. The best time of year to transplant it is April, when the flowers are over and before new growth begins. The soil it prefers is a clayey loam, although I have seen splendid clumps of it in a peaty soil. The shade of trees prevents too much sun-drying, but I do not think the plants objects to positions exposed to full sunshine, provided there is plenty of moisture at the root in summer, whilst growth is being made.

THE ROYAL HORTICULTURAL SOCIETY announces, with much regret, that the Directors of the South African Products Exhibition are unable to carry out their agreement entered into with the society to clear the Royal Horticultural Hall of their exhibits for the society's fortnightly show on March 5. As the space available, therefore, is much circumscribed, the Council, whilst expressing regret for the disappointment, appeals to their Fellows and others not to send any exhibit, except those of special interest and for certificate. Fellows tickets will admit to the hall as usual. A lecture will be delivered at 8 p.m. by Prof. HENSLON on "*The True Darwinism*." *W. Wilks, Secretary.*

LINNEAN SOCIETY.—At the evening meeting, to be held on Thursday, March 7, 1907, at 8 p.m., the following papers will be read:—1, Miss N. F. LAYARD, F.L.S., "*On the Development of the Frog*"; 2, Mr. S. W. KEMP, "*Biscayan Plankton Decapoda*"; 3, Prof. E. B. POULTON, F.R.S., "*A Special Point on Colour Adjustment of Chamaeleon*"; 4, Mr. G. CLARIDGE DRUCE, F.L.S., "*New Channel Island Plants*." Exhibitions: 1, Mr. H. J. GROVES, F.L.S., "*Specimens of Nitella ornithopoda, A. Br.*"; 2, Prof. E. B. POULTON, F.R.S., "*Probate of the Will of RICHARD ANTHONY SALISBURY, F.L.S.*"; 3, Prof. E. B. POULTON, F.R.S., "*Manuscripts of Dr. W. J. BURCHELL, F.L.S.*"

HORTICULTURAL CLUB.—At the next House dinner of the club on Tuesday, March 5, 1907, at 6 p.m., at the Hotel Windsor, Sir GEORGE WATT, K.C.S.I., has kindly promised to talk about "*Himalayan Scenery and Vegetation*," illustrated with lantern slides.

NATIONAL AURICULA AND PRIMULA SOCIETY.—The thirtieth annual report of the society has been issued which shows that the association starts the year with a balance of £11 1s. 5d., and that there are now nearly 100 members. We note that the Royal Horticultural Society has decided in future to cease giving its donation of £10 to the prize fund. Perhaps the authorities are of opinion that by affording every facility to the Auricula Society they are doing as much as can fairly be expected of them.

FLOWERS IN SEASON.—Mr. BARTLETT sends a few sprays of *Pieris floribunda* to show its value as a hardy winter-flowering shrub. Its flowers commence to open towards the end of October, and usually continue until April. The unusually severe winter in Cornwall has failed to do any material injury, and even 15° of frost did no more than arrest its flowering for a short time.

CARNATIONS AT TORONTO.—One firm alone sent 8,000 blooms of Carnations to the exhibition of the American Carnation Society at Toronto, Canada, on January 23.

NATIONAL AMATEUR GARDENERS' ASSOCIATION.—A meeting will be held at Winchester House, Old Broad Street, E.C., on Tuesday, March 5, at 7 p.m., when a lecture on "*Insects injurious to the Apple*" will be delivered by Mr. FRED. V. THEOBALD, M.A.

SOUTH-EASTERN AGRICULTURAL COLLEGE, WYE.—We are informed that the Mercers' Company have made a donation of 50 guineas, and the Grocers' Company one of 10 guineas to this institution. The Indian Government Agricultural Department have appointed Mr. H. E. ANNETT, B.Sc. Agric., London, as a supernumerary chemist at the Pusa Agricultural Station. The show and conference of the National Potato Society will be held at the college on October 2, and a conference of Hop growers will also be held there during the last week in November.

LONDON DAHLIA UNION.—The hon. secretary, Mr. E. F. HAWES, informs us that the London Dahlia Union will hold its annual exhibition in the Royal Botanic Gardens, Regent's Park, on Thursday and Friday, September 12 and 13, 1907.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of this society will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, March 11, at 8 p.m. Mr. CHARLES H. CURTIS, chairman of the committee, will preside. Three trustees, under the new rules, will be appointed at this meeting.

ORCHID SALES.—A glance at our advertisement columns will show that in the near future several well-known Orchidists intend to dispose of the duplicates in their collections. On March 12 Messrs. PROTHROE & MORRIS will sell plants from the EARL OF TANKERVILLE's collection. On March 14 the same firm will hold a sale on the premises at West Point, near Manchester, of duplicates from the collection of S. GRATRICK, Esq. The "*New Hall Hey*" collection is to be sold on the premises, without reserve, on April 9 and following days, and duplicates from the "*Westfield*" collection of FRANCIS WELLESLEY, Esq., will be sold at Messrs. PROTHROE & MORRIS' rooms in London on April 23 and 24. The "*Shirley Grange*" collection, belonging to G. H. ROLLS, Esq., will be sold at Messrs. PROTHROE & MORRIS' rooms on March 7 and 8, and duplicates from the "*West Bank House*" collection belonging to J. LEBMANN, Esq., will be sold on the premises of West Bank House, on May 7 and 8.

LINCOLN.—During the exhibition of the Royal Agricultural Show at Lincoln on June 26, and three following days, a great horticultural exhibition will also be held when handsome prizes and medals will be offered for groups of plants, collections, and cut flowers. Schedules may be had from Mr. P. BLAIR, of Trentham, Stoke-upon-Trent.

THE AMERICAN GOOSEBERRY-MILDEW.—It is said that this disease has made its appearance in several commercial plantations in some county not mentioned. If this be so, it is to be hoped that immediate steps may be taken to destroy the affected bushes by fire, and that a very vigilant watch be maintained over all plantations, and especially on newly-introduced bushes.

MR. HUNNEWELL'S PINETUM.—Prof. SARGENT has issued, in the form of an extract from the life of the late Mr. HUNNEWELL, a complete list of the Conifers for which Wellesley, Mass., is famous. Not only are the species enumerated, but details are given of the rates of growth and the dimensions of particular specimens. These details, though very interesting in themselves, are naturally more important for growers in the United States than elsewhere.

GRAFT HYBRIDS.—M. NOMBLOT has exhibited before the National Horticultural Society of France two varieties of Plums—*Mirabelle tiquetée* and *Gloire de Louveciennes*. Two branches of the last-named having been grafted on a stock of the first variety a third form appeared in the shape of a graft hybrid such as those described by Prof. DANIEL.

PROGRESS IN EARLY FORCING OF PLANTS.—So long ago as February, 1905, the florists' organ in Berlin, *Die Bindekunst*, drew attention to the users of warm water in the forcing of Lily of the Valley and to the alleged fact that its application to the crowns for one night hastened their flowering considerably. Lately the Society for the Advancement of Horticulture in the Prussian States invited an exchange of experiences in this field, and, in response thereto, Garden Inspector WEBER exhibited Lily of the Valley, the crowns of which had been soaked in warm water (35° Réaumur) (96° F.) previously to planting them, and in 14 days the plants were so far advanced as to be taken out of the forcing house. Herr SWOBODA, of the firm of J. C. SCHMIDT, Berlin, had experimented with a temperature of 15° to 20° Réaumur, and intended to carry on the experiment further. Nurseryman BEUSTER had applied water at 37° Réaumur without injury to the plants. The method has been tried at Dresden, even on Lilac, with good results, the plants being placed in tanks under water for 10 hours of a temperature of 22° to 24° Réaumur, 86° F. This method so very satisfactory, is much cheaper than atherisation, and will doubtless take its place in the early forcing of a large number of species. *Die Bindekunst*.

A HINT FOR FRUIT-GROWERS.—The Canadian and American Apples which reach our markets come properly packed, even in quality, and sent in packages of uniform size. The number of varieties sent over is small. Compare this with the higgledy-piggledy arrangements which too often prevail with us. We must not only grow good fruit—none can do it better—but we must send it to market with the same care and business methods as are adopted by our American brethren. It is of no use railing at the middleman. He, of course, likes to handle things so sent to market as to give him the minimum of trouble and the maximum of business. Our system, or want of system, too often does just the reverse.

TRADING BY STAMPED POSTCARDS.—In *Trading Made Easy*, a pamphlet, Mr. CHARLES A. HOUFE suggests that the public should be allowed to fix to the address side of a postcard stamps to the desired value in payment of an order written on the letter side, the stamps being cancelled by the sender writing his name across them, but the recipient receiving credit for the amount. One of such postcards, as in use in Germany, is now before us. A stamp for five marks (shillings) is affixed to the address side of the postcard, and the order written on the reverse side. The dealer, on presenting the card at the post-office, or, we presume, by paying it into his bank, would receive payment. Many of the difficulties attendant on the transmission of small sums would thus be obviated.

MANURING OF POTATOS.—The results of the field trials made in Lincolnshire in 1865 and 1866, under the auspices of the Midland Agricultural College, show that the most profitable application of artificials along with a small dressing of farmyard manure is the following: 1 cwt. sulphate of ammonia, 1 cwt. superphosphate, and 1½ cwt. sulphate of potash per acre. Farmers are advised on the ground of economy to purchase their own materials and mix them for themselves.

POTATOS.—In a recent communication to the *Journal d'Agriculture*, Mr. ARTHUR SUTTON asserts with confidence that there is no Potato in commerce which can be proved to have originated from bud-variation, or sporting from the tuber, and that there is not in commerce any distinct variety of Potato which owes its origin to selection from the seed-tubers. He further states that it would be easy to take a dozen or more tubers, all of different varieties, which a jury of horticultural experts, ignorant of the origin of the tubers before them, might readily take to be the produce of one and the same variety. M. LABERGIERE maintains that by removing single "eyes" from a tuber and subjecting them to intensive cultivation, it is much more easy to obtain variations from the original tuber than if the whole tuber were planted. But during the Potato "boom" when Eldorado is said to have fetched such enormous prices, many acres in England were planted with single eyes, but no case of variation was recorded. M. LABERGIERE is also quoted as stating that Blue Commersoni is more resistant to frost than Blue Giant. To this statement Mr. SUTTON opposes the following experiment: On January 24 of this present year, as frost seemed imminent, several tubers of Solanum Commersoni were placed on the surface of the soil side by side with an equal number of tubers of Blue Giant. That night 10° of frost were registered (5.6° C.), with the result that both sets of tubers were completely frozen. The controversy between M. LABERGIERE and well-known Potato-growers in France and in this country is not only of scientific interest, but it assumes commercial importance, as the new "Violet Commersoni" is about four times dearer than Blue Giant. M. LABERGIERE brings forward a large number of statements from various observers to show that his Violet Commersoni and Blue Giant are two distinct varieties in spite of M. PHILIPPE DE VILMORIN's assertion that the two are one. One of the points brought forward in evidence of the distinctness between the two varieties is that rats show a decided preference for the Violet Commersoni. Assuming that to be the case, that does not prove that the Violet Commersoni really originated from the ordinary Commersoni. Rats and slugs we all know show great discrimination, and so do sparrows. A few years ago these pests nearly completely destroyed a patch of the White Arabis (*A. alpina*) in our garden, tugging at the stems and carrying them off. This year they have hitherto left the Arabis alone and devoted their attention to a similar patch of Vinca minor, but in this case the young healthy shoots are too tough for these marauders, and they are confining their attention to the dead shoots chiefly.

NEW GARDEN-PLANTS OF THE YEAR 1906.—With commendable promptitude the authorities at Kew have issued their list of the "new" plants described and figured in the principal horticultural periodicals for the past year. The list is arranged alphabetically, and no attempt is made to do more than register the names as they appear and to give a brief description of them. Not even the name of the author is supplied, though in some cases an indication is given of the garden whence a particular hybrid proceeded. The list is indispensable to those who desire to keep themselves informed as to new introductions.

AQUATIC WEEDS, &c.—Mr. RIDLEY, in the *Agricultural Bulletin of the Straits Settlements*, details the results of some experiments made with a view of freeing the water of the ponds from objectionable weeds, cryptogamous and other. He found that sulphate of copper was effectual in abating the nuisance, but that owing to the strength in which it must be used to secure efficiency, the water so treated is not fit for human consumption.

DISEASES OF FRUIT.—The Board of Agriculture and Fisheries has issued a further series of coloured diagrams prepared under the supervision of the Director of the Royal Botanic Gardens, Kew, to accompany the first series which deal with diseases of forest and fruit trees. The second series deals with diseases of fruit, and fruit-bearing plants. These diagrams can only be obtained at the office of the Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. They are suitable for lecture rooms, museums, schools, etc., are contained in seven sheets, 21 inches by 15 inches, price 1s. each sheet, or 6s. 6d. a set. They will be sent post free, on receipt of the money with the order. Remittances should take the form of cheques or postal orders, and not stamps. Each diagram is accompanied by a brief account of the diseases, together with a statement of the measures to be taken for their prevention or eradication, printed in large type, in the form of a wall sheet. A small hand-book giving similar information can also be had, price one penny. The following diseases are included in the diagrams:—No. 1, Strawberry leaf-spot; Strawberry-mildew; Apple-rot; Cherry-scab. No. 2, Apple-mildew; Apple-canker; heart-wood rot; tree-wood rot. No. 3, Bladder Plums; Peach leaf-curl; shot-hole fungus; leaf blight. No. 4, Apple-scab; Pear-scab; brown rot. No. 5, Vine leaf-blotch; Vine leaf-scorch; black rot of Vine; powdery mildew of Vine. No. 6, Pear leaf cluster-cups; Apricot rust; American Gooseberry disease. No. 7, Walnut leaf-blotch; Cherry leaf-scorch; hazel mildew; silver leaf. The American Gooseberry-mildew is mentioned as likely to become troublesome in this country. Spraying with a solution of 1 ounce of liver of sulphur (= sulphide of potassium) in three gallons of water is recommended as a preventive. Spraying should be commenced just before the leaf-buds expand, and repeated at intervals, as may be necessary. It would have been advisable, we think, to have also counselled the immediate destruction by fire of bushes that are attacked. "Silver-leaf" is not confined to the Plum or Apple, but is not uncommon on the Common Laurel-Cherry and the so-called Portugal-Laurel, which are not Laurels, but species of *Prunus*. The use of Bordeaux mixture is so frequently advocated for various diseases that it would have been well to have published a formula for its preparation. It is astonishing how long it takes for useful information of this kind to permeate among the persons most deeply concerned. Bordeaux mixture has now been in use for many years, and almost every week we are called on to recommend its employment, but although we have often given the formula, scarcely ever do we mention it than someone writes to know what it is and how it is made. To satisfy such enquiries should they now be made, we may add that the ingredients are 6lb. of copper-sulphate, 4lb. of quick-lime, and 45 gallons of water; dissolve the copper-sulphate in 6 gallons of water in an earthen pan or some receptacle into which metal does not enter. In another receptacle slake the lime by adding water till the mixture is of the consistence of cream. Then mix the copper solution and the lime-mixture, adding the remainder of the water and keeping the whole continually stirred, as it is the sediment, rather than the liquid, which is beneficial. It is generally better to further dilute this strength by adding five or ten gallons of water before using it upon delicate foliage. In all these cases it must be remembered that prevention is better than cure. Spraying will not effect a cure, but it may, and does, prevent the occurrence and spread of fungus diseases. Weekly applications of sulphide of potassium are reported from America as having given excellent results in the case of the American Gooseberry-mildew (see Lodeman, *The Spraying of Plants*, p. 292).

E. ROSTRUP.—The death of this well-known plant pathologist at Copenhagen at the age of 76 years occurred on January 18. In 1860 he published his *Flora of Denmark*, which had a very large sale, and reached its tenth edition. At the time that he brought out this work, he was a master at a seminary for teachers, and at the same time he was studying fungi, especially those which are the cause of diseases in plants. His great knowledge in this field resulted, in 1883, in his appointment as Professor of Plant Diseases at the Agricultural High School at Copenhagen, an office that he held till his death. In his 71st year he had finished his great work on plant-diseases. He was the author of a great number of treatises, and the president of the Botanists' Club at Copenhagen.

DR. F. LUCAS, OF REUTLINGEN.—The retirement of the Director of the Pomological Institute at Reutlingen after 18 years' service, and who was likewise editor of its organ, *Die Deutsche Obstbau-Zeitung*, is announced.

LUTHER BURBANK.—An appreciative notice in the *Tribune Horticole* is accompanied by an attractive portrait. The author of the notice is Prof. STARR JORDAN, of the Leland Stamford University. The greatest credit is assigned to DARWIN, which no one will dispute. At the same time, it must be remembered that for his facts the great naturalist was very largely indebted to the horticulturists, as a mere glance at his *Animals and Plants under Domestication* suffices to show. On the materials accumulated in that work was based the *Origin of Species*, although the last-named book was the first to be published. Mr. BURBANK, who ranks as a disciple of DARWIN, seems to have done on a colossal scale what many of his predecessors did, and what they are still doing. So far as we have been able to ascertain, there is not anything novel or distinctive about Mr. BURBANK's procedures, apart from the magnitude of his operations. He has suffered severely from his friends.

FROST IN CORNWALL.—A correspondent, writing on the 23rd ult., states that another spell of wintry weather was being experienced. As low a temperature as 17° of frost was registered on the 23rd, with an easterly wind.

THE SOUTH AFRICAN PRODUCTS EXHIBITION.—This exhibition, which may be described as representative of all the South African industries, was opened by their Majesties the KING and QUEEN on the 23rd ult., in the presence of the Minister for the Colonies (the Earl of ELGIN) and a very distinguished company. His Majesty conferred the honour of a knighthood on Captain BAM, Chairman of the Exhibition Committee, whose remarks at the last Horticultural Club dinner were referred to on p. 109 of our issue for February 16. Our readers who may be able to attend the meeting of the Royal Horticultural Society on Tuesday next will have an opportunity to inspect the South African exhibits, which will so fill the hall that ordinary exhibitors are asked only to show plants or fruits which will be submitted for certificate.

BEQUESTS TO A GARDENER.—The late Lord FIELD, of Bakeham, Englefield Green, Surrey, who died on January 23, aged 93 years, and whose will has just been proved, left £500 to his gardener, THOMAS HENRY WREN. His lordship made liberal bequests to all his principal servants.

NATIONAL CHRYSANTHEMUM SOCIETY.—The fourth annual dinner of those interested in the market-shows will be held on Monday next, March 4, at Lyons' Popular Cafe, Piccadilly, W. Mr. R. BALLANTINE will preside.

SEEDING OF BEGONIA GLOIRE DE LORRAINE. After the large number of letters we have published on this subject, there can be no doubt whatever that those who wish may reproduce this popular plant by means of seed may do so. Our thanks are due to Mr. B. CROMWELL for shedding light on the matter in his weekly calendar in December last, and we are now enabled to illustrate a female flower, and a ripened capsule from material kindly sent us from the collection under Mr. CROMWELL'S charge. (See fig. 64, p. 145.)

GATTON PARK ORCHIDS.—We are informed that Mr. JEREMIAH COLMAN'S collection of Dendrobiums, &c., will be open to the inspection of the public on Saturday, March 2. The Gatton Park estate is near Reigate, Surrey.

COLONIAL APPOINTMENTS.—We desire to caution those seeking such appointments to be very careful to obtain information from trustworthy sources, such as the Agents-General for the several Colonies, and not to confide in any private agency without full enquiry into the status and reputation of the institution. No money should be paid in advance.

Publications Received.—*Field Experiments in Staffordshire and Shropshire*, and at the Harper Adams Agricultural College, Newport, Salop. Joint report for 1906. The committee have, for 13 years, superintended a useful work, and are now able to place the services of their Agricultural Instructor (Mr. John Rushton) at the disposal of farmers in the county.—*Midland Agricultural and Dairy College. Report on the Spraying of Potatoes to Prevent Disease.* 1906. Bordeaux mixture is recommended as being effectual and as increasing the yield.—*Circulars and Agricultural Journals of the Royal Botanic Gardens, Ceylon.* March, 1906. *Fruit Cultivation in Ceylon.* H. F. Macmillan.—April, 1906. *Bud Rot of the Coconut Palm.* T. Petch.—July. *The Spotted Locust.* E. Green.—July. *Root Disease of Hevea Brasiliensis.* T. Petch.—July. *Cotton.* C. Mee and J. C. Willis.—January, 1907. *Experiments in Blocking Wet Rubber.* J. C. Willis and M. K. Bamber.—U.S. Department of Agriculture. Bureau of Plant Industry. Bulletin No. 99. *A Quick Method for the Determination of Moisture in Grain.* By Edgar Brown and J. W. Duvel.

PLANT PORTRAITS.

PLUM, COE'S GOLDEN DROP.—*Garden*, February 16.

CAMPANULA GRANDIFLORA (Platycodon).—*Revue Horticole*, February 16.

POLYGONUM AUBERTI.—A bardy, ornamental climber from Sze Chuan, whence it was introduced to the Paris garden by P. Aubert. It is in the way of *P. baldshuanicum*, but inferior to it.—*Revue Horticole*, February 16, p. 88.

THE HORTICULTURAL SOCIETY OF VIENNA.

In a comprehensive work by Professor Dr. Alfred Burgerstein, general secretary of the society, the reader is presented with the history of the most important horticultural society in the Austrian-Hungarian Empire. The issue of the work is intended to mark the seventieth year of the society's existence, that is, from 1837 to 1907.

The society has experienced, like our own Royal Horticultural Society, a chequered existence, and has only of late years been steered into quiet waters.

In the month of May, 1837, was held the first public flower show in Vienna, and that was looked upon as an event of no small consequence, the foundation of the Vienna Horticultural Society was decided upon in consequence, the chief supporters of the idea being Carl von Hügel and several eminent horticulturists.

The flower show was held in a long glass house, standing in Prince Schwarzenburg's garden, which he lent for the occasion,

five nurserymen and 24 other exhibitors taking part in it. According to the catalogue, there were shown 589 species, varieties and hybrids, a considerable effort for that time: decorative plants in the true meaning of the word, possessing not alone of horticultural value, but of scientific interest also. Of stove plants there were 31 species; greenhouse plants, more especially natives of Australia, 112 species in 170 examples; Geraniaceæ, 96 species, and 144 examples. Contrary to present-day practice, the judges were chosen by the subscribers, who were requested to name the person he or she preferred, and the five who secured the greater number of votes were those who were chosen to act as the judges. These were Baron von Hügel, Baron von Jacquin, Hofgärtner Brede-mayer, Kustos Dr. Pohl, and Graf Harrachs, garden director at Lübeck; but, as Hügel was a competitor, Heinrich Schott was chosen in his stead. The five prizes awarded consisted of 1st, *Camellia japonica* fl. albo plena, grown as a tree, 9 feet high, which was taken by Archduke Anton, together with a Palm *Diplothemium litoreale*, as a rare exotic. The 2nd prize, an *As-trapæa Wallichii*, an example with seven side branches, was awarded for an exotic, well grown and of great beauty, to Baron Carl von Hügel, for a plant of *Erica tubiflora coccinea*, standing almost 12 feet high! The 3rd prize, for the most rare European plant, with especial regard to the Austrian flora, was awarded to a plant of *Primula longiflora*, shown by Baron von Welden. The 4th prize, another *Pæony*, but smaller, was awarded to Hon. F. J. Rolb, for *Azalea pontica*; and the 5th prize, a *Camellia japonica* fl. pleno carneo, 3 yards high, was taken by Baron Pronay, for the most beautiful Geraniaceæ, and in respect to variety with *Campylia carinata*.

Steps were taken by Archduke Anton to bring the establishment of a society before the Kaiser, and with such good effect that Hügel was requested by Prince Metternich to draw up the fundamental plan of a horticultural society, and to take as his model the Royal Horticultural Society of London.

Although the scheme was favoured by the Kaiser, and most favourably reported on by the authorities of lower Austria, two years passed (May 20, 1830), before the government accepted the proposal to establish the society, and asked to have the statutes laid before them. Other two years had flown, and von Hügel had departed on his explorations in India and Australia, and as much importance was attached to his attendance at the foundation of the society, it was decided to wait till his return, which took place in January, 1837.

Hügel lost no time in calling together his colleagues to a conference. On January 11, 1837, with Baron Hügel as provisional president, Dr. Stephan Endlicher, secretary *pro tem.*, and Freiherr von Pereira, treasurer. The statutes were revised, and at last sanctioned by the Kaiser and his Ministers. In the revolutionary year 1848, the money troubles of the society were accentuated; many subscribers and friends failed to support it so well as formerly, or dropped out entirely, and it could barely pay its way. In 1856, things took a favourable turn, the trade sent more plants and other objects to the two or three shows held annually, and the exhibits were of better quality, more particularly in 1857, when a great number of nurserymen and florists participated, and fresh blood was infused into the management, with the object of bringing the more intelligent gardeners nearer together, Beer and Ludwig Abel called into life monthly evening meetings, which for the first time began in the winters of 1857, 1858, at which lectures were given in popular form, and rare and interesting plants were shown.

Hitherto the society had had no settled home, but in 1861 an event happened which had an important effect on the future of the society. Towards the end of 1860, the former treasurer,

Freiherr von Mayr, made a communication to the council of management that a most influential personality was inclined to make a free gift of a site for the erection of an exhibition building in the vicinity of the projected Stadt Park, and partly on the site of the old fortifications, the town ditch, and adjoining glacis; and on this spot the offices, glass houses, and exhibition saloons were erected, and a small reserve garden laid out, the entire work being finished according to agreement, within two years, reckoned from the day it was given over.

On June 2, 1870, Carl Freiherr von Hügel died. But little of what this extraordinary man did for the Vienna Horticultural Society can be related in this short sketch; but, as Dr. Burgerstein writes, page 48: "The name of Hügel will be inscribed in letters of gold in the annals

the base and on its head, leaving a white area between.

The plant, which is blooming for the first time, has four bulbs and seven blooms, and has not been disbudded, is from the same capsule as the "Rosslyn var.," and is the result of crossing a blotched crispum with a fine Harryanum; the position of the blotches being indicated by the "island" spots in the hybrid. These two varieties are the finest yet bloomed from Mr. Sander's "bruggense" type of this hybrid; they are quite different in character to Mons. Vuylsteke's original cross, his being upon an unspotted crispum.

In dedicating Mr. Sander's own plant to himself, I feel sure my brother hybridists will confirm my opinion that each is worthy of the other. *De B. Crawshaw.*



FIG. 61.—ODONTOGLOSSUM CRISPO-HARRYANUM "F. SANDER."

of the K. K. Gartenbau Gesellschaft, never to be obliterated." An excellent likeness of Hügel is given on p. 12.

The society conducts two horticultural schools—one the so-called Lower School in Vienna, and the Higher School at Eisgoub, a small market town in Moravia. *F. M.*

ODONTOGLOSSUM CRISPO-HARRYANUM "F. SANDER."

The accompanying reproduction of a photograph (life-size) of this beautiful variety hardly needs any explanation save an indication of the colour.

The sepals are "marbled" with rich brown upon a creamy white ground, the petals being whiter still, with rosy lips, and "marbled" with a brown tinged by crimson, of a distinct shade to that of the sepals. The lip is white, spotted with brown, and yellow all around the crest. The column is tinted with brown both at

habit, form of leaf, and inflorescence, and colour of the flowers. The variations appear to the visitor as if they must inevitably merge into each other. They are something like the metal lines on a giant railroad, and one cannot help picturing them running into each other just as the metals do at some great junction. We know, however, that the cultivator, whose object it is to cross and recross the varieties for the purpose of producing variation, performs another task which is of almost equal importance. This consists in keeping the strains, numerous though they are, as perfect to type as possible, and this is done by "selection." The practise of "selection" obviously implies that there is "rejection" also, and here is to be found an explanation of the non-merging of the strains. They are not united as the railway lines at a junction, because the cross-breeder, instead of fostering the connecting links, destroys them in the process of selection. He desires as many lines as are possible, but they must be distinct.

It is impossible to enjoy such a show of Primulas and to hear some of Mr. MacDonald's remarks upon the behaviour of seedlings obtained from certain crosses, without getting one's mind mixed up with questions of "genetics," heredity, Mendelism, &c. The eternal "why and wherefore" present themselves. Why has that Giant White Stellate Primula with very dark stems, crossed with a red stellate variety, produced an almost perfectly white flower with a suspicion of the "Duchess" zone in it, and having pale foliage and pale stems? When the practical man in charge of such experiments as are made at Reading declares that in the cross-breeding of Primulas Mendelism appears only perfectly true in regard to the foliage, and is not applicable to the numerous crosses that have relation to the colour in the flowers, it is clear that the science of "genetics" has not yet reached any degree of finality. At the same time, it is sufficiently evident that the science is beginning to become understandable when in one characteristic the crosses have always exactly the results Mendelism has taught the cultivator to expect. Seeds from palm-leaved or plain-leaved varieties, said Mr. McDonald, may produce the Fern-leaved type, but the Fern-leaved, after it has become fixed, has never been known to revert to the Palm-leaved form. Other interesting circumstances are found in certain varieties, which, in the matter of colour, are apparently incapable of becoming fixed. They are obtained in the ordinary work of crossing, and, being admired, the seeds are collected and sown, with the result that a number of the plants resemble the male parent, others the female parent, and some the "cross." If the process be repeated, the same result is obtained. In two instances, at least (one of which is "Giant Lavender"), it was shown us that after repeated attempts to fix these shades of colour, the varieties could not be catalogued, because it was known that seedlings from them would exhibit, in each case, the three forms already mentioned. Some would probably explain this by stating such crosses to be *pure* hybrids, and therefore unfixable, or it may be by stating that the qualities of the two parents are in such cases "mixed" (mechanically) in the hybrid, rather than "combined," and therefore remain capable of again becoming separated. It is an engrossing subject, and one upon which it is confidently expected more and more light will be shed in the immediate future.

One or two solitary plants of "stellate" crosses are very extraordinary, and although at present unattractive, they will be kept for future observation. Another solitary plant from a magenta crimson flower had flowers in which the petals were almost of the proper colour, except that a good depth of margin appeared as if it had been steeped in an acid which had removed the colour. Occasionally something similar is seen in the flowers of Dianthus. This Primula was unattractive, but it is not so much what such crosses are when they first appear, as

NURSERY NOTES.

CHINESE PRIMULAS AT READING.

MESSRS. SUTTON & SONS' vast collection of Chinese Primulas is now making a glorious display in the new glasshouses in the celebrated trial grounds near to the London Road, Reading. In many previous years we have visited the town for the same purpose as we did on Monday last, but on no such occasion was there a greater floral display to admire, or such diversity in shades of colour to interest. Perhaps there is no better manner of impressing the reader with the thoroughness of the Primula culture at Messrs. Sutton's establishment than to state that in the present season there are 270 batches of seedlings, as many as 380 different "stocks," and 14,000 plants. If these plants were arranged together on a flat surface, they would be sufficient to cover one quarter of an acre of land. In such a collection one can be easily confused with the endless variations in

what they may be capable of becoming themselves, or of giving rise to, that is taken into consideration, and even this very curious form may prove to be valuable.

We much admired a semi-giant Primula with very pale azure-blue or lavender-coloured flowers, having just the suspicion of a zone of deeper colour round the "eye." It resulted from crossing a deep purple or blue variety on to Pearl (white). The newest strain in sufficient quantity to be catalogued is known as "The Czar" (see fig. 62). It was raised from a cross between two pale blue varieties, one of which was Reading Blue. Czar has very deep purple-blue flowers, and its habit is most commendable. The plants are only seven months old, and are growing in 5-inch

the pages of which some of the best are effectively illustrated.

The semi-double varieties, including the "Duchess Double," are of a strain well worth recommendation, and the "stellate" varieties are exceedingly pretty plants for placing in a vase, whilst some of the colours are particularly effective when seen under artificial light. There are "giant" forms of each type, even of the "stellate" type, and in the "giants" there is greater vigour and substance, at the expense of profusion of flower. The "giants" are now at their best.

THE CYCLAMENS.

It would be a great omission to fail to mention the charms of the Cyclamens. The whole

PRIMULAS AT FOREST HILL.

THE Chinese Primula is commonly spoken of as the florists' Primula, and these so-called florists' flowers are among the most useful of all our decorative flowering plants, and they are specially valuable in their season of flowering. Perhaps it is from this fact, and also because they are grown in almost all gardens, that the florist has in the past devoted, and is still giving, much attention to the improvement of these excellent winter-flowering subjects. The figure in our issue for September 15 last shows a wild plant of *P. sinensis*, as collected by Dr. Henry in the very limited habitat in which it is found around Ichang, but a glimpse in the plant-houses at Messrs. Carter's nursery, Forest Hill,



FIG. 62.—MESSRS. SUTTON'S NEW "BLUE" PRIMULA "THE CZAR."

pots, but they had produced wonderful flower "trusses," and on one such specimen we counted 35 expanded blooms. The lemon "eye" in this richly-coloured type is very effective. The foliage is Palm-leaved, and the petioles about "half-dark." The "Duchess" type and the "Duchess hybrids" are still much sought after, and a new strain of Duchess type is being collected, which in several colours possesses the characteristics of the old *alba magnifica*, namely, much curled foliage and flowers, and an unusual number of petals. We cannot enumerate the long list of varieties, but those interested will find them described in the firm's catalogue, in

collection is now in full flower, and it furnishes quite a marvellous display of colour.

The varieties are well known, but special reference may be made to Salmon Queen, which is almost fiery in colour. It is the brightest colour in the collection. Giant Salmon Pink, a selection from Salmon Queen, has larger flowers, but is less rich in colour. Vulcan is the deepest coloured Cyclamen, but Giant Crimson is rich in shade, and has larger flowers. Most gardeners know the merits of the beautiful white varieties "Butterfly" and "Giant White," and with mention of them we must conclude our remarks.

shows that the florist has been at work evolving something different from the wild species and more nearly approaching his own ideal. Whether he has improved upon the type in the matter of habit may be a matter of taste, but we shall all agree that he has furnished some beautiful shades of colour in the flowers of this plant. The collection at Forest Hill embraces some 10,000 plants, representative of all the best shades of colour, from pure white to the deepest purple. The ideal Primula of the florist must be neat in habit, dwarf, with its leaves in a shapely whorl, and from the centre a compact inflorescence arising, strong of stalk, and with

a well-disposed head of large flowers—the “pips,” as they are termed. Such an one is the variety King Edward, a white kind, which is grown very extensively at Forest Hill, and one whose seeds are in great demand. It may, perhaps, be mentioned in passing, that these Primulas at Forest Hill are grown especially for their seeds; consequently, they do not show excessive vigour either in plant or in flower, as robustness of growth is not favourable to the production of seed. But they were all furnished with seed pods in varying stages, and the prospect of a plentiful crop of seeds was good. The plants are all artificially pollinated, and each little batch of a certain variety has its own brush by which the stigmas are dusted with pollen. Although the varieties were staged without much space between them—only sufficient for light and air being allowed, they do not intercross. The flowers of *Primula sinensis* have a protruding stigma, and when the gamopetalous corolla drops, the stigma is brushed against the stamens as it is pulled through the corolla tube and pollen is deposited on the receptive organ. This is probably sufficient to ensure fertilisation, but no risk is taken when seed saving is the object, consequently they are all artificially pollinated, and it is an interesting fact that soon after they are dusted with the brush the corolla falls. In the raising of new varieties the selected parents are intercrossed, and should something novel be found in the

named Holborn Blue, the shade is nearer heliotrope, but it is an acquisition, and was given a First Class Certificate by the Royal Horticultural Society some time since. Lilac Queen must also be mentioned. It is a double variety, and of very free blooming habit, and the somewhat loose panicles are very highly prized as cut flowers. Indeed, all this semi-double section of Primulas are valuable for furnishing cut flowers, and perhaps nothing is more useful in its season to the florist than the old alba plena. Snowflake is very early in its season of flowering, and its semi-double flowers, when mingled with suitable foliage, are very pretty in the cut state for vases, &c. Holborn Crested is a distinct kind; the deep-rose tinted corolla has very deep fimbriations, giving it a crested appearance, and is responsible for the name. We have no space to describe all the many other varieties seen, but must mention the seedlings, and of these the most promising is a plant with beautiful coral-red petals that are very full—almost a double variety. The “pips” are very fine, and having a big truss and an excellent habit the plant will no doubt be in demand when it is placed before the public. Another promising seedling was of a beautiful magenta shade, and when properly “fixed” the colour is bound to become a favourite one. Tight and compact of habit as is the florists’ Primula, the type known as “Stellate or star” Primula is lax, and the wild parent is about intermediate between

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

BLUE HYDRANGEAS.—I have been much interested in the notes on Blue Hydrangeas, and am reminded of a very fine bank of these plants growing in a garden near Cranleigh, Surrey. The plants were growing on the banks of a dell (practically in the woods), and were all in the picture of health, and splendidly flowered. The colour of the flowers on the plants at one end was of a beautiful shade of deep pink, which, as one went along, got paler, till it was only a very delicate shade of mauve. From here they began to get more blue, till at the further end they were quite an intense blue. I enquired if anything was done to influence the colouring, the answer being “No.” The plants on which the pink-shaded flowers grew were on slightly higher ground, and in full sun, while those with the deep blue flowers were on lower ground, with rather more moisture and shade. I secured a few cuttings from the blue-flowered plants in the autumn, the resulting plants giving me some very fine flowers, but only of a deep shade of pink. I generally manage to secure a few blue-flowered Hydrangeas each season by watering the plants twice weekly with a solution of alum-water, after they begin to show their flowers. T. S., *Addlestone*.

SWEET PEAS.—The advice given by Mr. Brotherton on p. 90, and repeated by A. D. in last week’s issue, p. 106, to sow thinly, is not likely to be disregarded by purchasers of this year’s novelties in Sweet Peas, as many packets of these contain no more than a dozen seeds. The practice of sowing thickly is, I think, more prevalent among cottagers and small growers for market, many of whom still adhere to the old style of rows of mixed colours, and thick seed-sowing. The very fine displays from professional gardeners seen yearly at our summer shows, however, clearly prove that the advantages of thin planting have been thoroughly appreciated by them for some years. Of course, there is a wide difference between thin sowing and thin planting. In the latter case the plants are usually thoroughly hardened, and with 3 or 4 inches of wiry growth, which is practically safe from the attacks of mice, birds, or other pests. In the case of seed-sowing direct outside, the circumstances are somewhat different, and a little extra seed sown to guard against, and make good, losses from the above causes is to be recommended. It is in the neglect of timely thinning that the evil results of thick sowing become apparent, but it is difficult to make the average cottager believe that a judicious thinning is beneficial to his thick-sown rows. A second sowing about the beginning or middle of April is a great help in prolonging the flowering season of the sweetest of annuals, especially so on light, gravelly soils, or during a hot summer, the later-sown plants taking the place of the earlier batch. Unless for exhibition purposes, the sowing of three seeds in a single clump is not advisable; these, at the most, would throw no more than a dozen growths, which would make but a poor display when compared with a bold clump 3 or 4 yards through. In masses like these, planted in separate colours, in a wide border either of annuals or mixed herbaceous plants, the Sweet Pea is seen to the greatest advantage. The following is a list of varieties, with their colour:—Countess Spencer (pink), Queen Alexandra (scarlet), Navy Blue (dark blue), Lady Griseld Hamilton (pale blue), John Ingham (rose), and the Hon. Mrs. Kenyon (creamy yellow); the latter I give in preference to Dora Broomfield, which last year, with me, was frequently streaked with pink. The orange-tinted varieties (and several of these are amongst our prettiest Sweet Peas) are so liable to be scalded or scorched by the hot sun, that unless shaded during the height of the day, their true beauty is not seen. T. H. B., *South Devon*.

COLCHICUM AUTUMNALE.—In a foreign park under my charge this plant was a great nuisance, and as the grass was made use of as hay I had to be very careful to extract the leaves before it was mown, having lost one or two cows that were fed on it. The plants flowered capitally in the early autumn, and to rid the grass land at that season seemed to present no difficulty, but finding the corms were at least 18 inches deep in the soil I had to desist from the attempt. F. M.



FIG. 63.—NORTH-WEST AMERICAN SILVER-FIR.

To the left *Abies nobilis*; in the centre *A. magnifica* var. *xanthocarpa*; to the right *A. magnifica*; all much reduced.

batch of seedlings this seedling plant is carefully grown on and induced to seed. The seedlings of this batch will probably not all come true, and at least three years must elapse before the varieties are “fixed,” but afterwards it is remarkable how true the varieties will come from seed. In looking at a very large batch of Messrs. Carter’s Princess May, one was impressed with the great regularity in the plants, and no deviation whatever was seen in the exquisite and delicate tinting (pink) of the large petals, borne in big trusses. This is certainly a very fine variety. It is not new, but was raised at Forest Hill a few years since. Elaine is another beautiful white Primula, the “pips” being especially large and clear. The foliage is handsome and of the type known as “Palm-leaved.” The foliage differs greatly in form in some of the varieties: one was named Oak-leaf from the great resemblance of its leaves to those of the Oak; others are known as “Fern-leaved” varieties, and of this type belong the beautiful Ruby, one of most brilliant colouring, with just a speck of white at the base of the segments, and a few on the margins. Varieties, named from their colours, such as Vermilion, Carmine, Crimson, Magenta, Scarlet, &c., were noted, the colours representing very fine shades, and the plants were of excellent habit. Crimson is a variety of beautiful deep colour, and the one named Scarlet is very rich in shade.

The colours have a fairly wide range, and one approaching blue was noticed. Although it is

the two. The great value of the star Primulas for decorative purposes, and especially for intermingling amongst other subjects, has caused them to be in much favour, and very bright they appear when mingled with suitable greenery on the stages of the conservatory or greenhouse. These varieties can be had in all the choicest colours, and a very fine selection of these were noticed, labelled under their respective colours, such as Crimson, Blue, Salmon, Carmine, Pink, Purple, &c. A very large batch of plants of unnamed varieties represented a good mixed strain, with colours of most of those described.

A glance through the nursery showed a very large batch of Cinerarias that we shall probably see again at Temple Show time; also Petunias, Gloxinias, and the usual array of florists’ plants.

One house was entirely devoted to the accommodation of pigmy trees in pots that were probably more handsome than the distorted trees.

ABIES NOBILIS AND ITS ALLIES.

We are now enabled to give illustrations (on a very reduced scale) of the three species of Silver Fir to which we alluded in our last issue. To the left is *Abies nobilis* with sharply reflexed bracts, but the cone shorter and blunter than usual; in the centre *A. magnifica* var. *xanthocarpa*, alias *shastensis*, with horizontally projecting bracts; and to the right *A. magnifica* with the bracts entirely concealed. The photograph was furnished us by Mr. Crozier, of Durrus, Aberdeenshire.

ACACIAS FOR THE MARKET.—In the note on page 74 of *Gardeners' Chronicle* for February 2, concerning the importation of Acacia shoots in a flowering state to this country, although *A. dealbata* is named, there is no mention of *A. Decaisniana*, which is said to furnish a large proportion of the imported flowers. This plant is equally floriferous with *A. dealbata*, and has similarly globular clusters of pale yellow flowers. Perhaps it may be propagated from cuttings of the young wood, which is not true of *A. dealbata*; the latter growing only from seeds and layers. *F. M.*

INSECTICIDES FOR VINES.—Quite a large correspondence on insecticides has taken place recently, especially on those best fitted to destroy mealy-bug when infesting vines. It is really extraordinary how extensively this pest has invaded vineries during recent years. Yet there are several ways of destroying this insect without injuriously affecting the vines. I have tested the value of stripping the vines in as thorough a manner as possible of their bark, and have not discovered that other vines with bark intact gave any better results. Therefore on vines that are infested with bug the bark should, as a primary step, be removed. The most effective of all insecticides is undoubtedly hydrocyanic acid gas, and vineries cyanidised before the buds have made much progress remain clean practically through the summer. But much lack of knowledge regarding the use of hydrocyanic acid gas still prevails, and I have recently seen as much as 6 oz. of cyanide of potassium per 1,000 cubic feet recommended, and the fumes to be confined several hours. In my experience, if 4 oz. per 1,000 feet are used longer than half an hour, it is dangerous to vegetation. With regard to tar, I have tested it on vines when in a resting state and on others in full growth. In the latter state it may be used neat. The usual formula, which I think is that recommended by Mr. H. W. Ward, of nine parts of clay to one of tar, is safe, but ineffective, unless the vines have been thoroughly cleaned previously. Tar and water do not readily mingle, therefore I, first of all, mix the tar with the dry powdered clay and then add warm water to bring the material to the consistency required. Of petroleum it may be said that it varies so much in quality that one is never sure of it. I never use it on vines, for no matter how carefully it is emulsified, it acts injuriously, though the vines grow out of check in the course of the season. There is yet another insecticide which I have often applied and always effectively, but as it is liquid it is not so searching as hydrocyanic acid gas. This is hot water, the degree of heat being to a large extent governed by the operator, who prefers it to be less hot than vines will bear it in consideration of his hands. By the simple means of syringing vine rods occasionally up to the breaking stage, no bug or other insect is left alive to attack the early leaf, and if ants are not colonised in vineries, none will appear later. The advice I gave to a gardener who applied for something to cleanse infested bunches I may also give here. It was simply to syringe vines and bunches repeatedly with hot water, letting the water run down the latter rather than forcing it among the berries, which, moreover, will not stand it so hot as will the foliage. If the water employed is soft and pure, the bunches are practically not damaged at all, and though it might be expected that the dirt made by the bugs would spread over the berries, even that is washed away, with the exception of a little sediment left on the point of a few berries. *R. P. Brotherston.*

GAS TAR AS AN INSECTICIDE.—I am pleased to note that one correspondent, *T. A.*, has proved that gas tar used in its pure state did no mischief when applied to young trees. A farmer planted some 60 pyramid Apple trees last autumn, under my supervision, and during the winter hares attacked the bark. Some friend of the farmer advised the painting of the trees with tar, which was done before the matter was mentioned to me. I have made enquiries, and have been told by one who has proved it, that tar causes the trees to remain dormant, and to make no growth for three or four years, after which time they cast off the bark where the tar was applied, and grow away fairly satisfactory. I shall be glad if any reader will furnish me with instructions for removing the tar from the trees which is on both the stem and the lower branches. *T. J. H.*

BEGONIA GLOIRE DE LORRAINE.—I have about 170 plants which have been used for decorative purposes since November 1, and most of them have been in the dwelling-house on several occasions. A good many seed pods are forming, and I counted 15 on one plant in a 4-inch pot. Most of the plants in 4-inch pots have seed pods forming, but there are very few on those plants in pots of larger sizes. The Turnford Hall variety is also forming seed pods in 4-inch pots. *H. Chaplin, Normanton Gardens, Stamford.*

I have examined a small batch of these plants in these gardens and I found 126 seed capsules on 24 plants. All are terminal flowers. Unlike Mr. Cromwell I have found a few male flowers with five petals, and one female flower with



FIG. 64.—BEGONIA GLOIRE DE LORRAINE, SHOWING ONE TERMINAL FEMALE FLOWER WITH OVARY AND ONE LATERAL MALE BLOOM

six petals, but most of the males have four and the females five. We grow the plants in a small house where Melons are cultivated in the summer time. At present the house is kept fairly warm and dry. *Fred. Low, St. Cleve Gardens, Sevenoaks, Kent.*

I agree with Mr. Cromwell, page 94, that *Begonia Gloire de Lorraine* produces its female flowers freely. But as I have never sown any seed I cannot testify as to its germination. Some years ago when the same subject was discussed in the *Gardeners' Chronicle* I had ripe seed, and (like *W. B.*, page 94) lost all interest in the matter when it was said that they would not reproduce themselves from seed. I do not agree with *W. B.* entirely as to the scarcity of female flowers, as I think that if the plants are kept

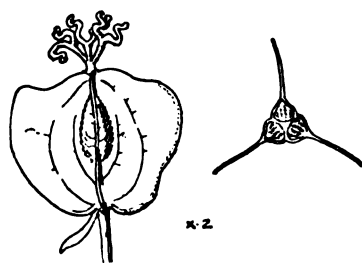


FIG. 65.—SEED POD OF GLOIRE DE LORRAINE BEGONIA, SHOWING THE THREE WINGS AND THE STYLES.

To the right a section across the capsule.
(From Mr. Cromwell.)

healthy and without check they will produce female flowers quite freely. In the majority of cases the plants are cut back before they produce the female flower. *R. Mountford, Norton Priory Gardens, Runcorn.*

I have now upwards of 460 seed capsules of this *Begonia*, and since my notes, published in these pages on January 19, I have counted on the dwarf pink variety 360 fruits, in addition to those the seeds of which I have already sown. Of these 36 have now ripened. The large flowering variety, with the exception of four or five plants, will be some time before they show their terminal flowers. I find this variety is the best to withstand the fogs which, as a rule, are very bad in the Thames Valley. I have a small batch of this variety coming into flower, on which are some very fine blooms, some measuring over 1½

inch in diameter. *R. Goodbourn, Anherwyche Gardens, Wraysbury, Bucks.*

I have been interested in the differences related by the various growers of this plant, but I fail to see why growers should be surprised to find this, or, indeed, any other plant, grow more vigorous from seeds than from cuttings. Nature does not usually increase plants from cuttings, and I could never see any reason why this *Begonia* should not produce fertile seeds. When a hybrid is raised from two plants of the same genera why should not the offspring seed? Reference has been made to that observing hybridist, the late Mr. James Martin. Only a few days before he died he made reference to *Begonia Gloire de Lorraine*, and suggested that it would be a shy seeder, which inference has proved correct. Some 25 years ago a hybrid *Begonia*, having the name of *Fanny Giron*, was placed on the market. This was a poor grower, but very floriferous, and a most attractive kind. With me it would not seed. I noticed it produced male flowers first, and from the abundance of bloom I was under the impression the non-seeding arose from exhaustion. Speaking in a general way gardeners are not much concerned with the seeding of plants, and this may often lead them to come to many inaccurate conclusions. Mr. Cromwell makes reference to the differences in the shape of the male and the female bloom, and in their size. This also applies to other *Begonias*. For years I have grown this *Begonia* under much colder conditions than is usual, and to obtain plants of large size I place three cuttings in one pot from the first, by which system I find them more enduring for furnishing, and the flowers are of a deeper colour. *John Crook, Forde Abbey.*

QUICKLIME FOR CURRANT BUD MITE.—There is no ingredient more often recommended for destroying insects, &c., than the above, generally (e.g., in Mr. W. Collinge's recipe for destroying the Black Currant Mite) in a finely-powdered condition. Yet, considering the rapidity with which it absorbs moisture from the atmosphere, I venture to doubt whether, in 99 cases out of 100, it really is "quick" and not "slack" lime. As the former is, I find, very difficult to procure (indeed I do not know where to get it), and the latter very easy, it would be well to know whether this would not do as well. Of course it will not have the caustic quality of *real* quicklime. Perhaps one of your chemical readers will enlighten us. [If slaked lime is used, it is important that freshly slaked material be obtained.—ED.]

MUSA BASJOO.—Does this species bear edible fruits, or are its fruits, like those of *Musa ensete*, small and hard? Six years ago a large two-stemmed plant, which was grown in a tub for sub-tropical work in the gardens here, showed signs of flowering, and, as it was then nearly the end of October, I had it moved into a house in which a night temperature of from 60° to 65° Fahr. was maintained to ensure its flowering. At this stage the stalk was just over 6 feet in height. As the flowers opened they diffused a pleasing perfume suggestive of *Roses* and newly-mown Hay. We had great hopes of a crop of fruits, but although the flowers dropped and the "fingers" showed signs of swelling, they did not become more than 1½ inches long, and after a few weeks shrivelled slightly and turned yellow, and when opened did not yield any seed. Another plant has passed seven winters in the open ground without the slightest protection, and as many as 15° of frost have failed to do it any harm, so that the species may be considered to be practically hardy. When grown unprotected in the open it becomes to all intent and purposes a herbaceous perennial; the small true stem at the base of the bundle of overlapping leaf-stalks which constitute the apparent stem answers the same purpose as the fleshy root-stock of many perennials, and fresh leaves are thrown up from the same stem year after year. Four or five degrees of frost usually blackens the leaves of this *Banana*, and more severe cold kills a part of the false stem. During an average winter the top half of this leafy stem is killed, and the recent severe frosts have cut them down to within 9 inches of the ground, but an examination shows that below this point the plants are uninjured. In the spring these plants push up fresh leaves, and by midsummer they are well furnished with luxuriant leaves. Being gross feeders I give them an annual top-dressing of cow-manure. *A. C. Bartlett, Pencarrow Gardens, Cornwall.*

PLANT NOMENCLATURE.—Neither the Vienna Congress nor any other congregation of botanists will ever convince practical people that a very large number of the botanical names now given to plants are not absurd, as absurd as the names that certain people delight in giving their children. All efforts to make the name describe or tell the origin or the distribution of a plant are not only futile, but the result is often misleading. There are dozens of instances, as every gardener knows. Does anyone believe that such names as *Zygopetalum* or *Paphiopedilum* fit the plants in some special way? Of course, we must have names for plants, but just as John Smith is a simpler name than Algernon Cholmondeley, so would much simpler and more euphonious names be better than all such as those mentioned. The poor plant sometimes suffers from the ugliness of its name. I know people who will not grow *Eschscholtzia* because their name is so ugly. And some of us steer clear of such names as *Phragmopedilum* for the same reason. The ugliest thing that has been done lately has been the institution of the jumble name for multi-generic hybrid Orchids. It is a sort of Bakerloo mixture, on the principle of calling a cup of tea a cup of watermilk sugar tea, so that we can know the whole concoction by its name. Thus we have *Brassocattleya*, *Brassocattlælia*, and, before long, we shall have *Brassocattlælepiphrontis*. Surely this is ridiculous. It never should have been started. When two so-called genera interbreed that is a proof of their congeneric relationship, and one name should go, at any rate so far as the hybrid is concerned, which should be named after its mother, the father being often conjectural. Is it too late to set this matter right? Now that the breeder has got a grip of the breeding art he will go ahead, and botanists will be forced to pay attention to the results of his work. If he shows that the botanist made a bad shot when he separated certain plants into different genera the botanist had better admit it. Unfortunately he is too often obstinate, and will continue to give to mongrels such absurd names, whilst we continue to make gardening look ridiculous by accepting them. *W. Watson*. [Mr. Watson should be thankful he is not a chemist. In any case the worst offenders are not the botanists, but the growers.—ED.]

THE POISONS BILL.—The new Poisons Bill was re-introduced into the House of Commons and read a first time on the 22nd ult. Clause 2 of this Bill is to make it legal for the horticultural and agricultural trades to retail poisonous preparations required in these industries. The new regulations proposed in Clause 2 practically contain the amendment of the law for which the "Traders in Poisons Society" have been agitating for the past four years. It is fully anticipated that the Government will push this Bill to a second reading at a very early date, and that Clause 2 will pass as it now stands. The new Poisons Bill has already passed the House of Lords, and when the Special Commission sat to enquire into the present law regulating the sale of poisons, a majority report was given by his Majesty's Privy Council in favour of the present Bill, and it is well known that it is strongly advocated as a necessity by the Board of Agriculture, so that there is very little doubt about it passing. *G. H. Richards*.

BIRD LIFE IN LONDON.—To those persons who visit London only occasionally, the large and representative collection of the feathered world in the parks has caused surprise. Rare kinds are not seen in the heart of the city, but a fair number of uncommon ones are met with in the outlying parks, such as at Waterlo Park. Here, on several occasions, the Kingfisher has been seen, Bullfinches and Greenfinches are not uncommon, whilst the Missel Thrush, Blackcap, Bluetit, the busy little Wren and the Redwing are met with. The Woodpecker flitting from tree to tree, in search of the destructive goat moth, and the Owl, with its nocturnal cries, both find a home here. The Chaffinch is not often seen. One of the greatest boons legislators could bestow on persons having the care of gardens would be to place a small tax on cats. Residents of towns can have but a faint idea of the wholesale destruction of our feathered friends by their feline companions. Starlings are generally too quick for pussy, but Blackbirds and Thrushes fall an easy prey to the large army of cats. *A. J. Hartless*.

SOCIETIES.

THE AMERICAN CARNATION.

JANUARY 23.—This society held its 16th annual meeting and exhibition at Toronto, Canada, on the above date. In spite of a temperature of 8° below zero, and the consequent delay of trains, the exhibition was a success and, according to the American papers, there was an attendance of at least 300 Carnation specialists. Much was made of the fact that the meeting was held on Canadian soil and of the consequent opportunity for cordial fraternisation between the two sections of the Anglo-Saxon race. Among the communications was one by Mr. Engelmänn, of Saffron Walden from which we take the following extract:—

"The American Carnation stands in England to-day something like this: There are, I should say, about 1,000,000 plants grown for the production of cut flowers alone. Ninety per cent. of these at least are cultivated in pots. Of the remainder, two-thirds are planted on raised benches and one-third on solid beds. The latter two methods are gaining in favour, and in ten years' time I should not be surprised to see the state of things reversed. "Besides these, there is a large quantity grown in private establishments, and hardly any of the up-to-date estates is now without its special Carnation house.

"The number of the American kinds grown in this way I should estimate at 100,000 to 200,000. Ninety-five per cent. at least are grown in pots. This number is constantly increasing, and there is no doubt that the modern winter flowering Carnation is beginning a fight for supremacy with the *Chrysanthemum*, which has hitherto been the unassailed queen of the autumn and winter. I calculate that in five years' time there will be at least three times the present quantity grown in England."

Mr. Engelmänn says the sun does not shine at all in London throughout November, December, and January, at least not to any appreciable extent. The qualification is needed, for the registers for the last few months tell a very different tale; though, no doubt, we are far in arrear of some of the States in the matter of sunshine. We fancy if the American grower were subjected to the same disabilities that we are, that he would turn on the electric light or avail himself of acetylene, but we on this side of the Atlantic are slow to adopt new methods. At the same meeting Mr. Dutton, who was the first to introduce the American Carnation here, describes Britannia as the finest scarlet, and he notes the fact that many of the varieties which do well in America prove very poor here. Enchantress still maintains its reputation, and is held up as a model to be "lived up to."

SOUTHAMPTON ROYAL HORTICULTURAL.

FEBRUARY 4.—The annual general meeting of this society was held at the Municipal Offices, Southampton, on the above date. The Mayor, Alderman R. Andrews, J.P., presided over a large attendance of the members. The statement of accounts showed an adverse balance on the year's working; the total receipts, including £50 from the reserve fund, amounted to £702 10s. 11d., and the expenses, including debts from the previous year, to £702 18s. 11d. The Chairman, in moving the adoption of the report, said the exceptionally severe weather on the occasions of the last two autumn shows had reduced their cash balance, but their receipts from subscriptions are increasing, and their exhibitions are improving in quality. The report was unanimously adopted. All the retiring officers and members of the Council were re-elected, including Sir Samuel Montagu, Bart. (president), Mr. H. J. Blakeway (chairman of the Council), and Mr. C. S. Fudge (secretary, for the thirty-fifth time).

CARDIFF AND DISTRICT CHRYSANTHEMUM.

FEBRUARY 7.—The annual general meeting of the above society was held, under the presidency of Mr. John Grimes, chairman, on the above date. There was a large attendance of members. The statement of accounts showed the total receipts for the past year was £304 13s. 6d., and the expenditure £322 12s. 4d.,

leaving an adverse balance of £17 18s. 10d. Mr. Boon, one of the hon. auditors, pointed out that the deficiency in the receipts was due to the inclement weather on both days of the show—there being a falling off of £42 on the takings compared with those of the preceding year. The balance sheet was duly adopted. The chairman, in reading the committee's report, dealt fully with the items, and said that with rigid economy the expenditure had been reduced by £18, and he was pleased to say that amounts had already been promised which would cover the deficiency.

The three challenge cups had been won finally, and the committee were endeavouring to replace them.

Mr. J. W. Courtis, J.P., president, and the other officers were re-elected. The dates of the show for 1907 were fixed for November 6th and 7th. *H. G., Hon. Secretary.*

ROYAL METEOROLOGICAL.

FEBRUARY 20.—The monthly meeting of this society was held on the above date at the Institution of Civil Engineers, Great George Street, Westminster, Dr. H. R. Mill, president, in the chair.

Mr. Edward Mawley presented his report on the phenological observations made during 1906 by observers in various parts of the British Isles. The most noteworthy features of the weather of the phenological year ending November, 1906, as affecting vegetation, were the dry period lasting from the beginning of June until the end of September, and the great heat and dryness of the air during the last few days in August and the first few days in September. Wild plants came into flower in advance of their usual dates until about the middle of April, after which time they were, as a rule, to about the same extent late. Such early spring immigrants as the swallow, cuckoo and nightingale reached these islands somewhat behind their average dates. The only deficient farm crop, taking the country as a whole, was that of Hay, all the others being more or less over average. The yield of Apples was about average in all but the north of England and in Scotland, where there was a very scanty crop. Pears and Plums were everywhere very deficient, whereas all the small fruits yielded moderately well. As regards the farm crops, the past year proved even a more bountiful one than that of 1905.

THE BRITISH GARDENERS' ASSOCIATION.

MEETING AT KINGSTON.

FEBRUARY 22.—A meeting of the association promoted by the Richmond and District Branch was held in the Fife Hall, Kingston-on-Thames, on the above date. Judging by the attendance (97 or 98 persons), the gardeners in the district are fully alive to the fact that their profession is in need of such an association to look after its interests. The meeting was presided over by Mr. Alexander Dean. An address on the aims and objects of the B.G.A., given by Mr. R. Hooper Pearson, occupied a little over one hour. The chief points touched on were that co-operation amongst gardeners would benefit the employer as well as the gardener and keep out of the profession untrained and inexperienced men. Reasonable rates of pay and hours of labour were legitimate objects for which to strive. Certain bothies in the British Isles were unfit for their purpose, and, as recently stated by the *Estate Magazine*, were they in any other place they would long ago have been condemned as unfit for human habitation. He (Mr. Pearson) instanced two cases of death due to unhealthy bothies, which had come under his own notice. The B.G.A. should encourage gardeners to rise in their profession, and assist them when out of a situation to obtain another, and help employers to obtain men with the experience and ability necessary to carry out the duties of the position to be filled. Good employers had nothing to fear, but much to gain, from the association. When the association was first started, many predicted failure, but the membership is now over 1,000, and the Society has a balance of £250 in the bank. He (Mr. Pearson) thought this did not look much like failure. It was hoped shortly to commence the publication of a B.G.A. Journal, which would help to keep the members in closer touch with each other. Messrs. Hussey, J. Weathers, W. Watson, and

others subsequently discussed various points arising out of the address. Judging from one question asked, namely, whether nursery "hands" were eligible for membership, much work has yet to be done before the gardeners of the country become fully conversant with the aims and objects of the association. Mr. Pearson and Mr. Weathers both made some remarks on this subject, saying that in whatever branch of horticulture a man was employed, provided he had the necessary experience and qualifications, he was eligible to become a member of the association. Those employed by nurserymen, seedsmen, public bodies, &c., were as eligible as the gardeners employed in private establishments.

Mr. Alex. Dean, at the close, said after what they had heard that evening, he thought all those not already members (especially the younger men) should seriously consider whether it would not be to their advantage to join the association. He expressed his intention of becoming a member, and pointed out that an old man like himself was scarcely likely to lead younger men astray. Others present expressed their intention of joining, and applied for forms of membership before leaving the room. During the evening the General Secretary remarked that the Sunderland Branch was one of the strongest in the country. In the Richmond and District Branch it has a healthy rival. A.O. (*Branch Secretary*).

NATIONAL CHRYSANTHEMUM.

FEBRUARY 25.—The executive committee of this society held a meeting at Carr's Restaurant, Strand, Mr. Thomas Bevan presiding.

The Forest Hill Chrysanthemum Society was admitted to affiliation.

The secretary presented an interim statement of receipts and payments to date, showing a small balance in hand.

The report of the schedule sub-committee next occupied the attention of the meeting and involved much discussion and consideration. The report mentioned that the available sum to be offered in prize money could not be computed at more than £308 15s. 6d.; special prizes in addition. Two prizes for the October show, six for the November, and two for the December were recommended, and it was further proposed that a small sub-committee be appointed to arrange the spacing and setting out of the shows with a view to increasing the general artistic effect.

Mr. C. H. Curtis announced that the printers would have the new year book ready for distribution in a few days. Several new members were elected.

DEBATING SOCIETIES.

BRIGHTON AND SUSSEX HORTICULTURAL.—A lecture on "Cucumbers and Tomatoes" was given by Mr. H. Elliott, of Hassocks, at the first meeting of the year, in connection with this society. Mr. G. Miles, chairman of the committee, presided, and there was a large attendance. Dealing with the "spot disease" of Cucumbers, he recommended a mixture of carbolic acid and water in the proportion of a table-spoon to two gallons of water. It was important not to put the liquid on the plants or the soil in which they were growing. It should be used about the greenhouse, on the floor and the walls. In answer to a question, Mr. Elliott recommended the fumes of burning cayenne pepper and spraying with a weak solution of soft soap as a remedy for red spiders and other parasites; but cautioned growers to avoid inhaling the fumes of the pepper.

CRAWLEY AND DISTRICT GARDENERS'.—Mr. Joseph Cheal presided over the annual meeting of this association, held on Tuesday, February 19. The total receipts for the past year were £88 18s. 9d., and of this a credit balance remains of £8 9s. 4d. Six new patrons and nine members were enrolled. The report, which was read by the hon. secretary, shows a prosperous state of affairs, and is a general record of the year's work.

REDHILL, REIGATE, AND DISTRICT GARDENERS.—The usual fortnightly meeting of this association was held on Thursday, February 21. Mr. F. C. Legge occupied the chair. Mr. G. Duncan, Merstham House Gardens, read a paper on "The Cultivation of Grapes." A clear open space should be selected for the site of a vineyard, which should be a span-roofed structure for preference. Mr. Duncan explained the methods of making a vine border, and gave details of the compost best suited to vines. Methods of planting and the subsequent treatment of the young vines were touched upon, also such questions as thinning, ventilation, watering, stopping and tying. A good discussion followed. F. C. L.

BECKENHAM HORTICULTURAL.—"Cyclamen" was the subject of a paper read by Mr. T. Cresswell to the members of the above society on Friday, February 23. It was an excellent paper, full of useful information on such subjects as seedling, seed sowing, the best soil, potting, syringing, watering, &c. On the table were four beautiful specimens of these plants, exhibited by the lecturer.

MARKETS.

COVENT GARDEN, February 27.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Ed.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Azalea Fielderi, per dozen bunches	8 0	5 0	Marguerites, yellow, doz. bchs.	8 0	4 0
— mollis, p. bch.	1 0	1 6	Mignonne, per doz. bunches	2 0	8 0
Anemones, per doz. bunches	3 0	4 0	Narcissus, paper white, per doz. bunches	1 0	2 0
Bouvardia, per doz. bunches	4 0	6 0	— gloriosus	2 0	3 0
Calla æthiopica, p. dozen	2 6	4 0	— poetica, per dozen bunches	4 0	6 0
Camellias, white, per dozen	2 0	3 0	— Soleil d'Or, per dozen bunches	1 6	2 0
Carnations, p. dozen blooms, best American	8 0	6 0	Odontoglossum crispum, per dozen blooms	2 6	8 0
— smaller, per doz. bunches	12 0	18 0	Pancratium, d. fls.	8 0	4 0
Cattleyas, per doz. blooms	12 0	15 0	Pelargonium, show, d. bchs.	6 0	9 0
Christmas Roses, doz. blooms	0 9	1 0	— Zonal, double scarlet	5 0	8 0
Dafodils, d. bchs.	8 0	6 0	Poinsettias, per doz.	8 0	12 0
Dendrobiums, per doz. blooms	2 0	3 0	Primula (double white), d. bchs.	6 0	9 0
Eucharis grandiflora, per doz. blooms	8 0	4 0	Ranunculus, per dozen bunches	6 0	9 0
Euphorbia jacquiniiflora, per bunch	0 9	1 0	Roses, 12 blooms	8 0	5 0
Gardenias, per doz. blooms	6 0	8 0	— Niphetos	8 0	5 0
Heather, white, pr. doz. bunches	3 0	6 0	— Bridensmaid	4 0	6 0
Hyacinth (Roman), p. doz. bunches	4 0	6 0	— General Jacqueminot	4 0	6 0
Lilac, white, p. bch.	8 6	4 0	— Kaiserin A. Victoria	4 0	8 0
Lilium auratum	8 0	4 0	— C. Mermut	8 0	6 0
— lancifolium, rubrum and album	8 0	4 0	— Liberty	6 0	8 0
— longiflorum	8 6	5 0	— Mad. Chateaubault	4 0	8 0
Lily of the Valley, p. doz. bunches	6 0	9 0	— Mrs. J. Laing	6 0	8 0
— extra quality	12 0	18 0	Snowdrops, per doz. bunches	1 0	2 0
Marguerites, white, p. doz. bunches	8 0	4 0	Stephanotis, per dozen trusses	6 0	8 0
			Tuberose, per doz. blooms	0 4	6 0
			Tulips, doz. bchs.	5 0	8 0
			— Special varieties	12 0	18 0
			Violets, doz. bchs.	2 0	4 0
			— Parma, p. bch.	8 0	5 0

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum cuneatum, doz. bun.	4 0	6 0	Hardy foliage (various), per dozen bunches	8 0	9 0
Asparagus plumosus, long trails, per doz.	6 0	9 0	Ivy-leaves, bronze	1 6	2 0
— medium, bunch	1 6	2 0	— long trails per bundle	1 6	8 0
— Sprengeri	0 6	1 0	— short green, doz. bunches	2 0	8 0
Berberis, per doz. bunches	2 6	8 0	Moss, per gross	4 0	5 0
Croton leaves, bch.	1 0	1 6	Myrtle (English), small-leaved, doz. bunches	4 0	6 0
Cycas leaves, each Fern, English, per dozen bunches	1 6	2 0	— French, dozen bunches	1 0	1 6
— French, dozen bunches	2 0	4 0	Pernettya, with berries, per bunch	0 3	1 0
Galax leaves, per dozen bunches	2 0	2 6	Smlax, per dozen trails	2 0	3 0

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacias, per dozen	18 0	30 0	Erica gracilis, dz.	10 0	15 0
Ampelopsis Veitchii, per dozen	6 0	8 0	— melanthera, dz.	9 0	18 0
Aralia Sieboldi, dz.	4 0	6 0	— Wilmorea, p. dozen	12 0	18 0
— larger	9 0	12 0	— persoluta alba	24 0	30 0
Araucaria excelsa, per dozen	12 0	30 0	Euonymus, per dz.	4 0	9 0
Aspidistras, green, per dozen	18 0	30 0	Ferns, in thumbs, per 100	7 0	10 0
— variegated, dz.	30 0	42 0	— in small and large 60's	16 0	25 0
Asparagus plumosus nanus, doz.	9 0	12 0	— in 48's, per dz.	4 0	10 0
— Sprengeri, doz.	9 0	12 0	— in 36's, per dz.	10 0	18 0
— tenuissimus, per dozen	9 0	12 0	Ficus elastica, doz.	9 0	12 0
Azaleas (India vars.), per doz.	24 0	36 0	— repens, per doz.	4 0	6 0
— mollis, each	8 6	10 6	Genistas, per doz.	8 0	10 0
Begonia Gloire de Lorraine, p. dz.	12 0	18 0	Hyacinths, per dz.	9 0	12 0
— Turnford Hall, per dozen	12 0	18 0	Kentia Belmoreana, per dozen	12 0	18 0
Boronia megastigma, per dz.	12 0	18 0	— Fosteriana, per dozen	12 0	21 0
Callas, per doz.	9 0	12 0	Latania borbonica, per dozen	12 0	18 0
Cinerarias, per dz.	8 0	12 0	Lilacs, each	4 0	10 0
Clematis, per doz.	8 0	9 0	Lilium longiflorum, per dz.	18 0	30 0
— in flower	9 0	12 0	— lancifolium, per dozen	18 0	24 0
Cocos Weddelliana, per dozen	9 0	18 0	Lily of the Valley, per dozen	18 0	30 0
Crotons, per dozen	12 0	30 0	Marguerites, white, per dozen	6 0	9 0
Cyclamen, per dz.	10 0	15 0	Orange trees in fruit, each	3 6	5 0
Cyperus alternifolius, dozen	4 0	5 0	Primulas, per doz.	8 0	4 0
— latus, per doz.	4 0	5 0	Selaginella, dozen	4 0	6 0
Dafodils, per doz.	6 0	9 0	Solanum capsicastrum, per doz.	8 0	12 0
Dracenas, per doz.	9 0	24 0	Spræja japonica, dz.	9 0	15 0
Erica hymalis, dz.	15 0	18 0			

Fruit Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples, per barrel, Nova Scotian:			Grapes (English), Alicante, p. lb.	1 3	2 6
— Fallwaters	33 0	24 0	— Gros Colmar, per lb.	1 6	3 0
— Russets	33 0	25 0	— Almerias, per dozen lbs.	6 0	8 0
— Greenings	16 0	18 0	— Almeria, barrels	22 0	25 0
— Starks	30 0	21 0	Lemons:		
— Baldwins	16 0	18 0	— Messina, case	8 0	15 0
— Blenheim	30 0	21 0	Lyches, per box	1 0	1 2
— Ribstons	27 0	28 0	Mandarines, boxes	1 0	1 6
— King of the Pippins	23 0	24 0	— Palermos, 100's, box	4 0	4 8
— Canadian, per barrel	25 0	27 0	Nectarines (Cape)	6 0	10 0
— Russets	22 0	23 0	Nuts, Cobnuts, per doz. lb.	6 0	6 6
— Greenings	17 0	18 0	— Almonds, bags	54 0	—
— Ben Davis	18 0	19 0	— Brazils, new, per cwt.	65 0	—
— Baldwins	25 0	30 0	— Barcelona, per bag	82 6	—
— U.S.A., Newtown, p. barrel	10 6	16 0	— Cocoa nuts, 100	10 6	18 6
— Newtown Pippins, per case	10 0	—	— Chestnuts, Redon bags	7 0	9 0
Apricots (Cape), per box	8 0	—	— Italian bags	11 0	18 0
Bananas, bunch:			Oranges, per case:		
— West Indian, red	6 6	7 6	— Valencia	10 0	30 0
— No. 1	5 6	6 0	— Jamaica	11 0	13 0
— No. 2	8 0	10 0	— Navels	11 0	12 6
— Extra	9 0	10 0	— Jaffa	11 6	13 6
— Giants	4 6	6 0	— Seville Bitters, 300's, boxes	7 0	9 0
— Jamaica	0 9	1 8	Peaches (Cape)	6 0	10 0
— Loose, per dz.	11 0	12 0	Pears (Californian), per case	10 0	11 0
Cranberries, per case	4 0	—	Pineapples, each	2 3	3 6
Custard Apples, p. dozen	4 0	—	Plums (Cape), per case	4 0	6 0
Dates (Tunis), doz. boxes	4 0	—			
Grape Fruit, case	11 0	11 6			

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
A-tichokes (French), per dozen	2 6	3 0	Lettuces (French), Cos, per dozen	8 0	5 0
— English, ½ bush. bags	1 6	—	Mint, per dozen	6 0	—
Asparagus, Spruce French, bundle	0 6	0 8	Mushrooms (house), per lb.	0 10	1 0
— French Giant, per bundle	25 0	30 0	— Buttons, per lb.	1 0	—
— Paris Green, bundle	4 6	5 0	Mustard and Cress, per dozen pun.	1 0	1 6
Beans (French), packet	0 6	0 8	Onions (Valencia), per bushel	7 0	—
— Jersey, per lb.	1 0	2 0	— pickling, per bushel	2 0	2 6
— Haricots, pr. bx.	1 6	—	— French, ½ bag	2 6	—
— Madeira, per basket	5 0	—	— Dutch, bag	8 6	4 0
— Niger, p. bask.	4 6	—	— English, bag	4 6	—
Beetroot, bushel	1 6	—	Peas (French), per packet	0 5	0 6
Brussels Sprouts, per ½ bushel	1 6	2 0	— French, p. pad	5 0	6 0
Cabbages, per mat (about 30 to 40 heads)	2 6	3 0	Parsley, 18 bunches	2 0	—
— red, per dozen	2 0	—	— ½ bushel	2 0	2 6
Carrots, French pad	3 0	—	Parsnips, per bush.	1 8	—
— per bag, unwashed	2 0	—	— per bag	2 6	—
— washed	2 6	2 9	Potatoes (French), crates, per lb.	0 8	0 4
Cauliflowers, p. tally	6 0	8 0	— Canary, cwt.	10 0	12 0
— Italian, basket	8 0	4 0	Radishes (French), per dozen	1 3	1 6
Celeriac, per doz.	2 0	2 6	Rhubarb (English), per dozen	0 10	1 2
Celery, p. dz. bdls.	8 0	10 0	Salsafy, p. dz. bdls.	8 6	—
Chicory, per lb.	0 4	0 5	Savoy, per mat (holding about 30 to 40)	2 0	2 3
Chow Chow, p. dz.	8 0	—	Seakale, doz. pts.	12 0	14 0
Cucumbers, p. doz.	6 0	12 0	Tomatoes:		
Endive, per dozen	1 3	1 9	— Canary, per bundle	10 0	14 0
Horseradish, foreign, per dozen	12 0	—	— Turnips, per cwt.	8 6	4 0
Leeks, 12 bundles	1 6	2 0	— bags	8 6	4 0
Lettuces (French), per dozen	1 3	1 9	— washed, cwt.	4 0	—

REMARKS.—Valencia Oranges now arriving are of very poor quality, consequently this has caused a greater demand for those from California and Jamaica. Madeira Beans were a short supply this week, and samples have realised high prices. E. H. R., Covent Garden, Wednesday, February 27, 1907.

POTATOES.

Bedfords, 65s. to 80s.; Blacklands, 65s. to 75s.; Lincolns, 70s. to 95s.; Yorks, 80s. to 100s.; Dunbars, 90s. to 120s.; Teneriffe, 10s. to 12s. cwt. Trade has been bad during the past week, and stocks have largely increased. Firm prices are, however, maintained. W. J. C. & S., Covent Garden, February 27, 1907.

COVENT GARDEN FLOWER MARKET.

Trade is very quiet and supplies are over plentiful, with the exception of really good Ferns, supplies of which are a little short, the spring-grown plants being later than usual, while the autumn stock is exhausted. Cytomiums are the most plentiful amongst Ferns, and just at this season the old form is better than the variety Fensomii and others with broad pinnules. Asplenium biforme is fairly good both in 48 and 36 size pots. Many of the specimens of Aralia Sieboldi seen are very "soft." Araucaria excelsa is cheaper. Aspidistras are also lower in prices. Palms vary but little; they are well supplied in all sizes. Among flowering plants Cinerarias are now plentiful, and their prices have fallen considerably. The best samples of Genistas do not realise more than 10s. per dozen. Erica Wilmorea and the white variety are much better in quality than usual, the late autumn being favourable for the formation of their blooms. E. persoluta alba is also very good. Indian Azaleas are over plentiful. Narcissus, Hyacinths and Tulips are all much cheaper. Acacia ovata and A. Drummondii, also Boronia megastigma, are now seen. Primulas to be had include Primula sinensis and P. obconica. Marguerites are plentiful and good. Solanums are almost over for the season.

CUT FLOWERS.

Daffodils are the leading feature among cut flowers: their prices have fallen considerably during the past week. We now see many of the better sorts, such as Emperor, Horsfieldi, Henry Irving, Sir Watkin, Stella, and others. Some of the finest Lily of the Valley I have ever seen was on view this morning, but prices for this flower have dropped. Of Callas it is difficult to state prices; the best fresh blooms are in demand, but I have seen samples sold at from 2s. to 2s. 6d. per dozen. Liliun longiflorum still realises favourable prices. L. lancifolium is more abundant and consequently cheaper. English Violets sell fairly well. Among Roses some of the best blooms of Richmond have made 12s. to 15s. per dozen, but good blooms of General Jacquemont are realising from 4s. to 6s. per dozen only. It is very difficult to give even approximate prices for Roses. Many of the small blooms are disposed of for very poor returns, even if sold at all. Carnations also vary very considerably: many of the blooms are not of the best quality. Gardenias are still very scarce. Camellias are sold for almost any sum. Extra special quality Tulips keep up remunerative prices. Good Asparagus is not abundant, but other kinds of foliage are well supplied. A. H., Covent Garden, Wednesday, February 27, 1907.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending February 27.

Rapid changes in temperature. After four cold days there came a change to warmer weather. On the two coldest nights the exposed thermometer registered respectively 18 and 15 degrees of frost. The ground temperatures have varied greatly during the week. On the first day the reading at 1 foot deep was 40°, four days later 36°, and at the present time 40°, which is slightly warmer than is seasonable. At 2 feet deep the changes were, of course, not quite as marked. Rain, snow, or hail fell on three days, but to the total depth of less than a tenth of an inch. The soil has now become drier. In fact, on each of the last two days only a few drops have trickled through either of the percolation gauges. The sun shone on an average for 4½ hours a day, or for 1½ hours a day longer than is usual at this season. On the sunniest day the sun was shining brightly for 7 hours 30 minutes, an unusually good record for February. On the other hand, on two consecutive days the sun shone for less than an hour. The first day of the week was very windy, but since then calms and light winds have prevailed. On the 20th the average velocity of the wind between 10 a.m. and 7 p.m. was 24 miles an hour, and in the windiest hour 36 miles was recorded—direction W.N.W. The mean amount of moisture in the air at 3 o'clock in the afternoon fell short of a seasonable quantity for that hour by 8 per cent. A selected bush of the Wild Hazel first showed a fertile flower on the 26th inst., which is eight days later than its average date in the previous 16 years, and 11 days later than last year. E. M., Berkhamsted, February 27, 1907.

SCHEDULES RECEIVED.

HAWICK HORTICULTURAL SOCIETY'S annual summer show to be held in the Exchange Halls, on Saturday, August 31.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S spring show, to be held on Wednesday and Thursday, May 8 and 9, and autumn show, to be held on Wednesday and Thursday, September 11 and 12, 1907. Secretary, P. Murray Thomson, Esq., 5, York Place, Edinburgh.

Obituary.

JOHN VICKERY.—This Gardener died on the 20th ult., at the age of 67 years. Deceased had been Gardener for the past 19 years to Miss Keen, of The Cedars, Streatham Hill, and was previously Gardener at Wood End, Chichester, Sussex, Oakdene, Holmwood, Surrey, and Porter's Park, Shenley, Herts.

ENQUIRIES AND REPLIES.

PRIMULAS.—In answer to S. G., I may state that I have grown a batch of *Primula stellata* as two-years-old plants this season, with greater success than I at first anticipated. They were grown in 5-inch pots in the first year, and last June they were repotted into 7-inch pots, shaking off the loose soil and repotting in the usual compost. From that time, until the end of October, they remained in a span frame, stood on ashes. Since then they have been in a span-roofed house, in which the temperature at night was kept at about 60°. During the summer they were only shaded, when found to be suffering from bright sunshine, and apart from having occasional dressings of artificial manure, they were given very little attention. The plants are now in full bloom, and as good as could be wished for. I should advise anyone wishing for good plants of *Primula stellata* to grow them for two years. J. Hoare, Grenehurst Park Gardens.

The successful cultivation of Primulas as two-years-old plants is a simple process, especially with those of the "stellata" strain. The ordinary

Primula sinensis is less hardy and more susceptible to the effect of damp. Early in April dismantle the one-year-old plants of all flowers and flower stems, scrape a little of the old surface soil away, and if necessary remove a few of the bottom leaves, so as to leave a clear stem an inch or more in length. Mix some clean moss and silver sand, and pack this compost firmly round the stem, filling the vacant space on the top of the soil as far up as the base of the growing leaves. Place the plants on a bottom of coal ashes in a frame, near the glass, and keep the frame closed for a time. Keep the moss damp, and shade the plants from strong sunshine. When the plants have rooted into the moss, cut the stems through at the level of the old soil in the pots, pot them into as small pots as possible at first, then pot on in the usual way. These plants will be found much superior to seedlings. Plants grown from seeds sown in June, and wintered in 8½-inch pots, if potted on carefully in the following spring, will also make good plants for flowering in the following winter. W. M. M.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

BIRD-LIME: *Vitis*. This substance is usually made by boiling the inner bark of the Holly until it is of sufficient viscosity. On page 138 in our issue for March 3, 1906, is described a method of making a bird-lime from linseed-oil. Put the oil into a can, place the tin in a saucepan of water, and let it boil slowly till it is of the required thickness or stickiness.

CALCEOLARIAS FAILING: *Subscriber*. Without seeing the plants, we can only attribute the injury to frost. Examine the plants to see if they are properly rooted, or whether wireworm has eaten them below the ground.

CARNATION SHOOTS: *Correspondent*. These are attacked by the "Carnation fly," a dipterous insect resembling the common house fly, but smaller. Your only course is to remove the infected shoots and burn them, and the only means of preventing the insects laying their eggs is to dust the shoots, when moist, with dalmation powder soon after layering. R. N.

CUTTING AND RELAYING TURVES: *One who wishes to know*. Assuming your acre of pasture land to be square, the line will have to be stretched 171 times one way at 14 inches apart, and the same number of times the other way (crosswise) at the same distance from line to line, cutting into the grass about 2 inches deep with an edging iron, two men being engaged in doing the work, starting from opposite ends as they shift the line. This will give 37,337 turves 14 inches square, or thereabouts, when cut evenly, between 1 and 2 inches deep, with the turving iron. We think a fair price for cutting the turves, carting them 200 yards and relaying them temporarily, would be £12. And in this sum allowance is made for the nature and character of the turf to be cut, inasmuch as some grassy surfaces have very fibry and wiry roots, and are, therefore, much harder to cut than are turves of an opposite character.

FISH HATCHERY: *Fisher*. During recent years a number of books have been written upon this subject, many of which can be had for a few shillings. "The History of Howietoun," by Sir R. Maitland, published at 21s., by T. and A. Constable, Edinburgh, and "An Angler's Paradise," by J. J. Armistead, published at 12s. 6d. by The Angler, Scarborough, are two of the best, and you will be able to find all the information you require in either. See also an article on this subject to be published in an early issue.

INSECT IN VINERY: *Vitis*. The specimen you send is one of the weevils. Trap them with slices of such vegetables as Carrots and Potatoes. They commit their depredations mostly at night time, when they should be hunted with the aid of a lantern. See the *Calendar of Garden Operations*, p. 120.

IRIS: F. C. P. The Iris corms have not, in any way, been injured by insects. The small grubs present in one of the decayed specimens have nothing whatever to do with the origin of the

disease. I find on examination that the rotten corms are filled with the mycelium of a fungus, but this is apparently *post hoc*, as I failed to find any trace of a fungus in either the partly decayed corms or the leaves. My own interpretation is that the disease is possibly due to bacteria. R. N.

MUSHROOM BED: W. R. You should make a fresh bed and insert spawn as last year. Obtain *Mushrooms and How to Grow Them*, by Jno. F. Barter, price 1s 2d., post free.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. Correspondents not answered in one issue are requested to be so good as to consult the following numbers.

FRUITS: *Cantegn*. 1, Reinette de Breda; 2, Hanwell Souring; 3, Maltster; 4, Norfolk Bearer.—W. M. 1, Court of Wick; 2, Norfolk Stone Pippin; 3, Duchess Favourite; 4, Lodge-more Nonpareil; 5, Not recognised; 6, Blenheim Pippin.

PLANTS: J. F. S. *Cattleya Percivaliana* and *Hammaria discolor*, more frequently called *Good-yera discolor* in gardens. It is a very useful terrestrial Orchid, easily grown in an ordinary warm plant-house.—A. S. 1, *Cryptomeria elegans*; 2, *Osmanthus aquifolius*; 3, *Cuninghamia sinensis*; 4, *Cephalotaxus drupacea*; 5, *Retinospora squarrosa*.—C. E. F. *Bletia patula*. Please send better specimen of the other, with flowers.—R. O. Y. 1, *Isachilus linearis*; 2, *Epidendrum polybulbon*; 3, *Stelis ophioglossoides*; 4, *Brassia verrucosa*; 5, *Coleogyne sparsa*.—E. C. C. D. The variegated one is *Pteris cretica albo-lineata*, the other *Cyrtomium falcatum*.—F. D. *Cheshire*. 1, *Asparagus plumosus*; 2, *Pteris serrulata cristata*; 3, *Selaginella denticulata*; 4, *Cyperus alternifolius*; 5, *Coleogyne cristata*; 6, *Cytisus racemosus*.—T. G. S. W. *Cypripedium venustum* and *Dendrobium Farmeri*.—G. A. *Primula* (next week); 2, *Begonia*, probably *fuchsoides*.

NARCISSUS EMPRESS: J. C. The reason is that no flowers were found in the bulbs last spring. The bulbs are apparently healthy and will flower probably next spring. Why no flowers were produced last spring is more than we can tell.

ORCHID FLOWER-BUDS FAILING: W. J. N. The statement which you give seems to point to the possibility of the temperature having fallen too low on some occasion, even if only for a short time. The fall in temperature was not sufficient to affect the *Odontoglossums*, but the other plants, which required more heat than *Odontoglossums*, and a drier air, were injured. Otherwise, foul air from the stove-hole, or other source, must have got into the houses.

ROSES FOR EXHIBITION: P. F. P. We do not think the conditions you mention would be suitable for growing Roses in pots for exhibition. Should you be able to find a more open position, you might try growing Roses in pots, but not for exhibition. We shall then be pleased to advise you as to the best varieties to grow.

TOMATO PLANTS: *Alpine*. The tiny seedlings are attacked with the "damping-off" fungus (*Pythium* sp.). You may secure sufficient plants for your purpose if you prick them out into fresh soil. If this is impossible, you must sow again in soil obtained from a different source. Other question next week.

COMMUNICATIONS RECEIVED.—D. R. W.—W. E. B.—Board of Agriculture Sheep-Dipping Regulations—National Poultry Conference—C. B.—F. M.—W. J. B.—A. C. B.—F. W.—C. T. D.—G. McK.—R. W. P. and Sons, "Can you not send us a piece?"—T. A. (next week).—F. G. S. W.—J. C.—E. C. C. D.—W. & N.—G. P.—N. E. B.—B. L.—A. L. G.—W. B.—C. P. & Co.—R. A. B. C.—Subscriber—S. C.—F. B. S.—J. MacP.—M. L.—G. B.—F. W. P.—H. S. H.—W. G. J.—A. P.—W. J. B.—D. R. W.—J. C.—G. T. F.—E. C.—P. M., Haarlem. Contributions to the R.G.O.F. box: J. H., 1s.—Alpine, 6d.



THE Gardeners' Chronicle

No. 1,054.—SATURDAY, March 9, 1907.

CONTENTS.

<i>Abies magnifica</i> var. ... 159	Orchid-collecting ... 156
<i>Saxifraga</i> ... 159	Plant nomenclature ... 156
Annuity for a gardener ... 157	<i>Pleione yunnanensis</i> ... 152
<i>Araucaria imbricata</i> developing upright branches ... 160	Secret commissions ... 157
Books, notices of—	Societies—
Botanical Magazine ... 158	Horticultural Club ... 162
Mendelism ... 158	Leeds Professional Gardeners ... 162
Cabbage-leaf-spot disease ... 164	Manchester and North of England Orchid ... 162
Cats in gardens ... 160	Royal Horticultural ... 157, 160
Flowers in season ... 157	Soil sterilisation ... 152, 159
Frost, and spring-flowering plants ... 159	South African Exhibition ... 157, 161
Fruit-plantations, winter work in ... 158	Tree-ferns in Sikkim ... 158
Fruit-trees and lysol ... 157	Trees and shrubs in Scottish gardens ... 152
<i>Gypsophila</i> , the florists' ... 164	Trees, fastigate ... 149
Himalayan vegetation, a lecture on ... 162	Tulip, a branched ... 157
Lenten Roses ... 160	Week's work, the—
Manchester Botanic garden leased ... 157	Apiary ... 155
Market gardening—	Flower garden, the ... 154
Prices for Grapes, &c. ... 150	Fruits under glass ... 155
" <i>Mimosa</i> ," the florists' ... 160	Hardy fruit garden ... 158
Narcissi, the non-flowering of ... 159	Kitchen garden, the ... 155
Obituary—	Orchid houses, the ... 155
McHattie, John ... 162	Parks and gardens ... 154
Wigan, Sir Frederick ... 162	Plants under glass ... 155
	Wilton Park, Beaconsfield ... 161
	Woodlice, to destroy ... 164

ILLUSTRATIONS.

<i>Betula alba</i> var. <i>pyramidalis</i> ... 151
Medal of the Sweet Pea Society ... 157
Orchid-collecting (Supplementary Illustration).
<i>Pleione yunnanensis</i> ... 152
<i>Quercus pedunculata</i> var. <i>fastigiata</i> ... 149
<i>Robinia Pseudacacia</i> var. <i>fastigiata</i> ... 151
Tree-ferns in Sikkim ... 158
<i>Ulmus campestris</i> var. <i>Wheatleyi</i> ... 160

FASTIGIATE TREES.

AMONG the aberrant forms of garden trees, those with a pendulous or weeping habit are, on the whole, much more appreciated than those with an opposite tendency. The reason for this is, I suppose, that the pendulous trees are more graceful and pretty than the others. There is also a certain kind of sentimentality about weeping trees which is pleasing to many minds. Still, if we value trees for the emotions they inspire, there is something to be said for the erect-growing kinds. To me, at any rate, few trees are more admirable than a well-grown, well-placed Lombardy Poplar, conveying, as it does in much the same way as a fine church spire, a sense of lofty aspiration.

The value of such trees, too, in the garden landscape is well known, relieving monotonous lines of vegetation as they do more effectually than anything else and enhancing, by contrast, the beauty and characteristics of other and different types of growth with which they may be associated.

There is one use to which some of these erect-growing trees might well be put, and that is for planting in streets. It is a common thing to hear people, especially those

who know nothing about the matter, reviling the way in which street trees in large towns are pruned—"mutilated" is the usual term. Yet, after a good many years' experience in pruning trees, I confess I do not see that it can be done much better than it is, as long as the present sorts of trees are planted. It is evi-

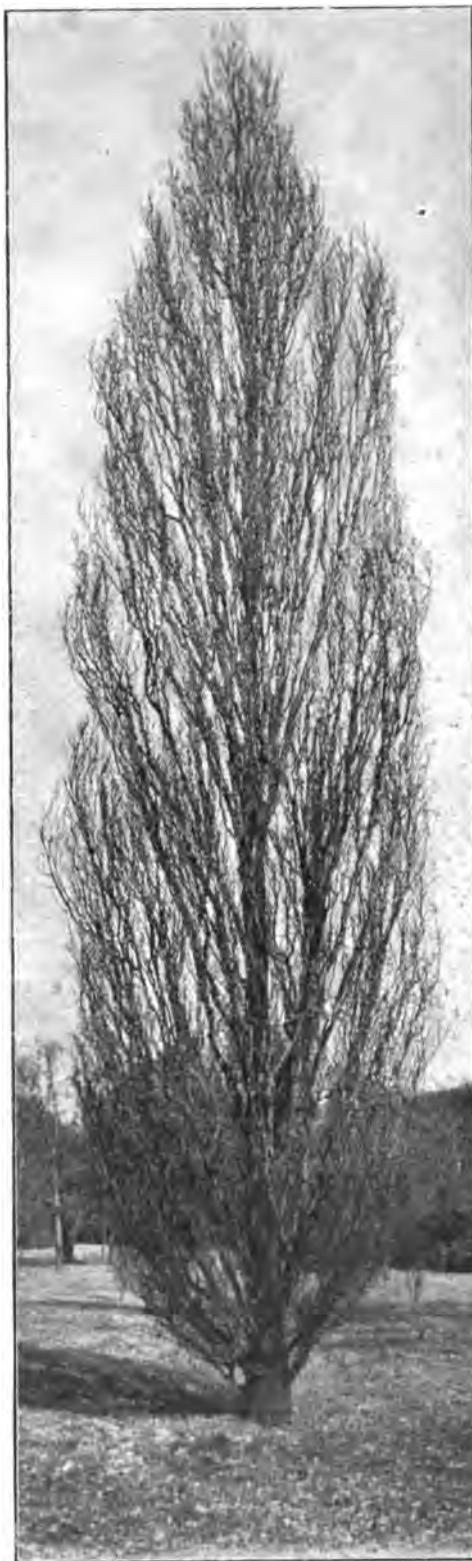


FIG. 66.—*QUERCUS PEDUNCULATA* VAR. *FASTIGIATA*, THE CYPRESS OAK.

dent that if two rows of big trees like Planes, Horse Chestnuts, Elms, and Limes are put into streets which a single row would more than fill if let alone, nothing but severe cutting will keep them within proper bounds. It strikes one, therefore, that trees naturally

of a narrower habit might well be given a trial. For instance, the Guernsey Elm preserves for many years a narrow, pyramidal outline, which the managers of our present street trees can only get by such a use of the knife and saw as makes the trees hideous for a considerable portion of their existence. The specimen of Guernsey Elm here illustrated (fig. 67) has never been pruned so far as I am aware, and I have known it for upward of twenty years. As will be noticed, it is still a comparatively narrow tree. All this, of course, applies more especially to the smaller cities and towns and to the outer suburbs of London. In the central parts of London and Manchester and other such cities, the Plane is by far the best tree for street planting, often, in fact, the only one.

Although nearly all our long-cultivated trees have sported into erect-growing, as well as pendulous forms, a great many of the former are but little known in gardens. It may be of interest, therefore, to bring together a few notes on some of these.

The propagation of these fastigate forms is most safely and conveniently effected by grafting, and the typical form should in each case be preferred as the stock. It is a curious fact, however, that several of them come partly true from seed, perhaps more frequently than is generally supposed. The Irish Yew and fastigate Oak are examples. Only a small proportion, however, come true, and to avoid waste of time waiting to see how the seedlings develop, most people prefer artificial modes of increase. Several varieties mentioned can easily be struck from cuttings, like the Yew, Lawson Cypress varieties, *Thuja gigantea*, &c.

QUERCUS PEDUNCULATA FASTIGIATA (Cypress Oak).—Although this tree has long been known in gardens (it is said to grow spontaneously in certain parts of South-western Europe), it cannot be described as a common or well-known one. Yet it is, as I think the accompanying illustration of a specimen at Kew will show, a very striking fastigate tree (fig. 66). In its leafless state it very much resembles the Lombardy Poplar, but it has the advantage of being longer-lived and freer from insect attack. In leaf and all other characters except habit it is like the common Oak. It is commonly known both here and in France as the Cypress Oak (*Chêne Cyprès*). There are several forms of this variety in cultivation—one with variegated leaves, another with tortuous branches, &c.—but none of them possesses a greater value than the ordinary pyramidal form except it be that called *viridis*, which is said to have leaves of a richer green. [There is a very fine specimen of the fastigate Oak in the gardens of the Trianon, Versailles.—ED.]

FAGUS SYLVATICA VAR. *FASTIGIATA* (Dawyc Beech).—The common Beech has sported into quite a variety of pendulous forms, but until lately I had regarded it as one of the few common trees that had not developed an upright-growing one. The Kew collection, however, has acquired one during the past winter through the generosity of Mr. F. R. S. Balfour. It is a layer from a large tree growing at Mr. Balfour's place at Dawyc, and as he desires the tree to bear that name I have pleasure in putting it on record.

ULMUS MONTANA.—The only really well-marked fastigate varieties of the Wych Elm are *U. montana fastigiata* (the "Exeter" Elm) and a yellow-leaved form of the same, sometimes known as *Ulmus Wredei*. Of neither of these could much be said in recommendation,

except that they are strikingly different from any other Elm. The finest Exeter Elm I know is in Canon Ellacombe's garden at Bitton. The trunk girths 11 feet at 5 feet from the ground. As a coloured leaved tree *U. Wredei* is not so useful as *Ulmus campestris* var. *Louis Van Houtte*.

variety for planting in streets has already been referred to (see fig. 67). Two small-leaved varieties of *U. campestris*, also erect in habit, are *Berardi* and *viminialis stricta*; they must, however, be regarded more as curiosities than anything else.

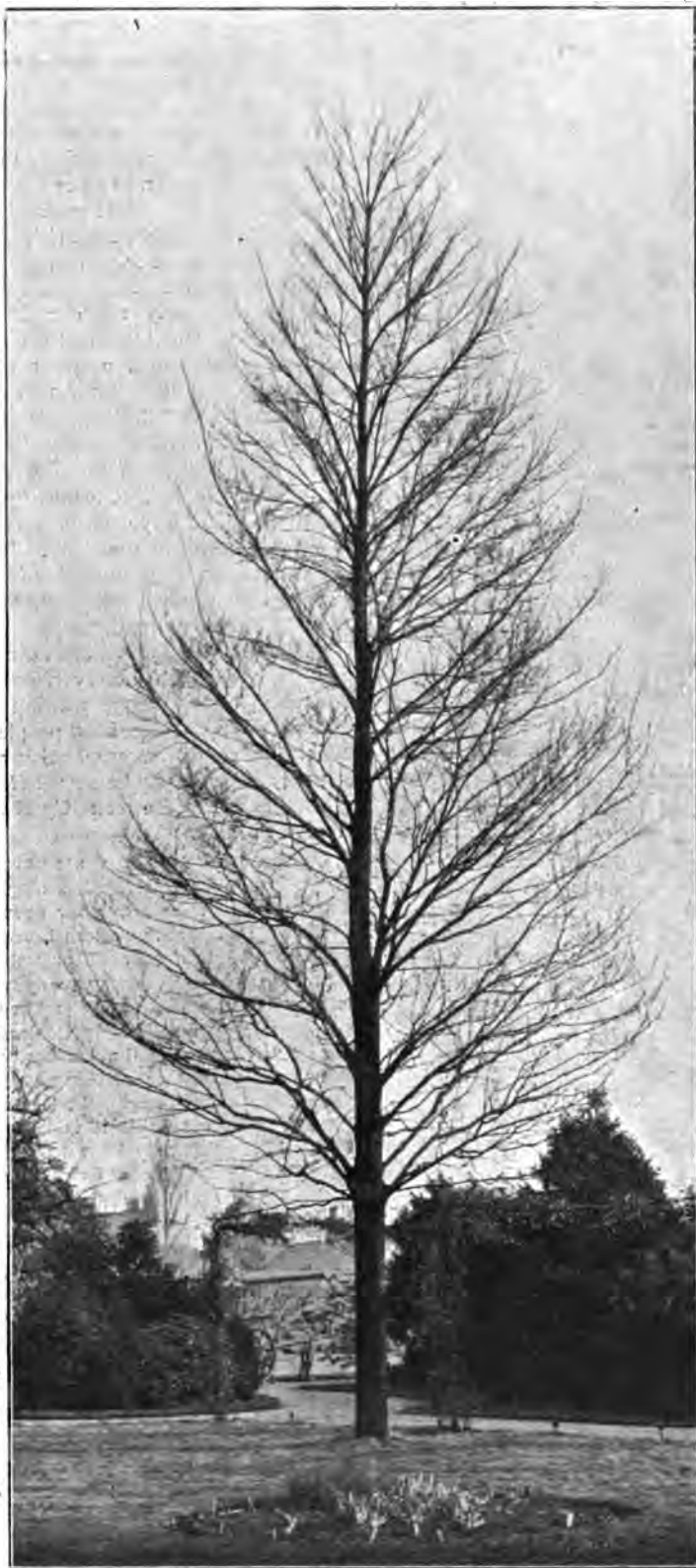


FIG. 67.—*ULMUS CAMPESTRIS* VAR. *WHEATLEYI*, THE GUERNSEY ELM.

ULMUS CAMPESTRIS.—There are several varieties of the common Elm which, whilst not exactly fastigate, are of narrower proportions and much more erect in growth than the type. The best of them is what we grow at Kew as the Guernsey Elm var. *Wheatleyi*, although it does not seem to differ in any way from the so-called Hertfordshire Elm. The value of this

ULMUS GLABRA CORNUBIENSIS (Cornish Elm).—This tree, although not so pyramidal as the Guernsey or Hertfordshire Elm, is still very much more narrow in proportion to its height than the ordinary *Ulmus glabra*. It also would make a useful street tree.

BETULA ALBA PYRAMIDALIS.—So characteristic of the Silver Birch—the "Lady of the Woods"

is the delicate grace of its pendulous twigs, that the columnar variety shown in the illustration (fig. 68) must be regarded as one of the most remarkable of the many varieties of that popular tree. I believe it is quite uncommon. Although such a variant from the type, it is in no way deficient in elegance, especially when, as in the picture, it is seen bending to the breeze (fig. 68). [We received a specimen from the late M. Van Volxem, which has now attained a considerable size.—ED.]

BETULA PUMILA FASTIGIATA.—The "Low Birch" is a native of North America, and this erect variety of it is also of American origin. It forms a columnar shrub 6 to 10 feet high, distinct, but of no particular merit as an ornamental plant.

ROBINIA PSEUDACACIA FASTIGIATA.—This curious tree, now seldom seen, is represented in the collection of Leguminosæ at Kew by a specimen 50 feet or so high. In habit it is one of the most erect and columnar of this class of trees, narrower, indeed, in proportion to its height than the Lombardy Poplar (fig. 69). Among the many curious varieties of the Acacia is one which has the divisions of each leaf reduced to three or even to one large leaflet only. It is called var. *monophylla*. Like the ordinary pinnate-leaved form this also has sported into a fastigate form, thus making a doubly curious tree. *W. J. Bean*.

(To be continued.)

MARKET GARDENING.

GRAPES.

NOT only now, but all through the season, Grapes have been realising good prices. The only time when they have been very cheap was in the autumn, when growers were clearing their vineries for the housing of Chrysanthemums.

Lime is now largely used in market vineries, being freely forked into the borders. Neither Belgian Gros Colmar nor French Alicante are of the usual good quality, yet the former are making 2s. 6d. per lb.

No effort should be spared in inducing a free root action in the borders by feeding, &c.

At Messrs. Rochford's Turnford Nurseries, which I visited recently, some tons of Grapes are still hanging on the vines. The vineries are utilised for housing other subjects in boxes or pots, but ample precaution is taken to see that the vines do not suffer from their presence.

The promise of good crops of both Alicante and Gros Colmar was satisfactory.

Four-year-old planted vines of Alicante in the newer houses were not started, but the buds were swelling without heat. These houses are now filled with *Lilium longiflorum*. The above firm is realising 3s. 6d. per lb. for both Alicante and Gros Colmar.

All know that it is folly to allow Grapes to continue to hang on the vines unless they are of the best quality. Supplies of the best quality Muscats were never equal to the demand.

GRAPE THINNINGS.

These are now seen both from Worthing and Guernsey, and having very immature seeds are at their best conditions for tarts, &c. They are sure to meet with a ready demand.

FRENCH BEANS.

Good samples in 1lb. bundles are selling well at 2s. 6d. per lb. I note this, as it is too often said that English-grown Beans are not wanted. Present appearances point to a good demand, and one that will last until Easter is over.

ADIANTUM FERNS.

These are not grown so largely as formerly, hence those who have them are finding a good market. One grower in the trade informed me a few days ago that Adiantums in all sizes were his best line, and this I can well believe. *Stephen Gattle*.

WILTON PARK, BEACONSFIELD.

A most pleasant run of about 40 minutes from Paddington, through scenery unsurpassed in the vicinity of London, brought me to Beaconsfield Station, and after a drive of about 15 minutes I came to the straggling, old-world village of the same name. From the eastern end of the wide street which forms the main thoroughfare may be seen the main entrance to Wilton Park. Dismissing the vehicle at this point, I walked about three-quarters of a mile to the gardens, where I was met by the energetic and genial head gardener, Mr. H. Perry. On walking through the park, which is pleasantly undulating, I was impressed with the fine specimens of forest trees, indicating in a marked degree the rich



FIG 68.—*BETULA ALBA* VAR. *PYRAMIDALIS*.
(For text see page 150.)

character of the soil. There were noble specimens of Oak, Elm, and Beech; especially fine were the Oak and Beech, and though unquestionably of great age, they exhibited a vigour rarely seen in old trees. They contained no dead and decaying wood, therefore the roots have not suffered from the drought of recent seasons.

The mansion, at present in the occupation of Sir John Aird, Bart., is admirably situated on the crown of a gentle elevation, and commands a lovely view of a charming dell adjacent to the house, and a more extended view of the district known as Gerrard's Cross. It is a substantial-looking structure, and suggests comfort rather

than architectural grandeur. Formal flower gardening is not practised at Wilton, and with good reason, as the position of the mansion and grounds, with their ornamental trees, shrubs, Roses, and a few flower beds judiciously interspersed, convey a picture to the lover of pleasure ground effect such as could not be obtained from any amount of summer-bedding, however skillfully arranged. The present occupier, being a true lover of Nature and keenly observant, has planted clumps of choice Rhododendrons in positions from which the best effect can be obtained. These were planted freely apart in the grass, no formal beds having been made, though, of course, fresh soil was used in planting, and evidently this had been of the right kind, for, despite the extreme drought of the past season, the growth made was in every way satisfactory. I also noted a newly planted Cherry orchard, which in its own season will beautify the landscape.

On entering the kitchen garden, which is 5½ acres in extent and which has been skilfully laid out, one is impressed by the evidences of a bygone art, viz., well-trained fruit trees. Here are to be seen Pears, Peaches, and Figs exhibiting in their growth an amount of vigour that is marvellous; but if any doubt should exist as to the age of the trees, the peculiar system of training which was a feature of the forties and fifties, is so well illustrated that any practical gardener readily arrives at their approximate age.

Here also was seen a splendid border of hybrid perpetual Roses. Rarely have I seen stronger growths, and that in varieties that are by no means strong growers generally; the pegging-down system is adopted here, and I have no doubt that when in full bloom the plants will present a feature of grandeur.

Herbaceous plants are here represented, not in massive clumps but in substantially laid out borders skirting the garden paths, and they are represented by the best known varieties of this useful family, especially those adapted for cut flower purposes.

Standard fruit trees, like those on the walls, are showing signs of age, but are still vigorous and produce large quantities of sound fruit, Cox's Orange Pippin being represented by many trees. The glasshouses are of the old-fashioned type and by no means suitable for present-day requirements; but already a start has been made to remodel this department, and a very nice range of plant-houses has been put up. On the occasion of my last visit these were well filled, one house being allotted to *Souvenir de la Malmaison* Carnations, of which Mr. Berry had a fine collection. The plants were in perfect health and absolutely free from "rust." Another house was devoted to the tree or winter-flowering section, of all of which Sir John Aird is a devoted admirer. These plants were also in excellent condition, producing abundant flowers, the well-known *Enchantress* being conspicuously fine.

Begonia Gloire de Lorraine, without which no garden seems complete nowadays, was occupying the front position of yet another house, while useful-sized plants of *Adiantum cuneatum* Fern filled the back stages. Stove and greenhouse plants, especially the most useful types, were well represented by healthy, clean stock, each seemingly getting the treatment suitable to bring out its best points.

I noted a great number of Roses in pots, which are in their turn placed under glass, and I was informed they were satisfactory in every respect. Violets, too, are grown in several frames, and like everything else in these gardens, were absolutely clean and flowering profusely. Mr. Berry has been very busily employed since taking charge of these gardens, in the planting before noted, and in putting the garden and other paths into a good condition. His efforts in

this respect speak for themselves, as the neat appearance of the newly-laid edging, with a liberal coating of gravel, and in some cases a foundation of ballast on the paths, gives the garden a neat appearance which cannot fail to please.

Mr. Berry's extensive and varied experience in some of the leading gardens of the country, not-

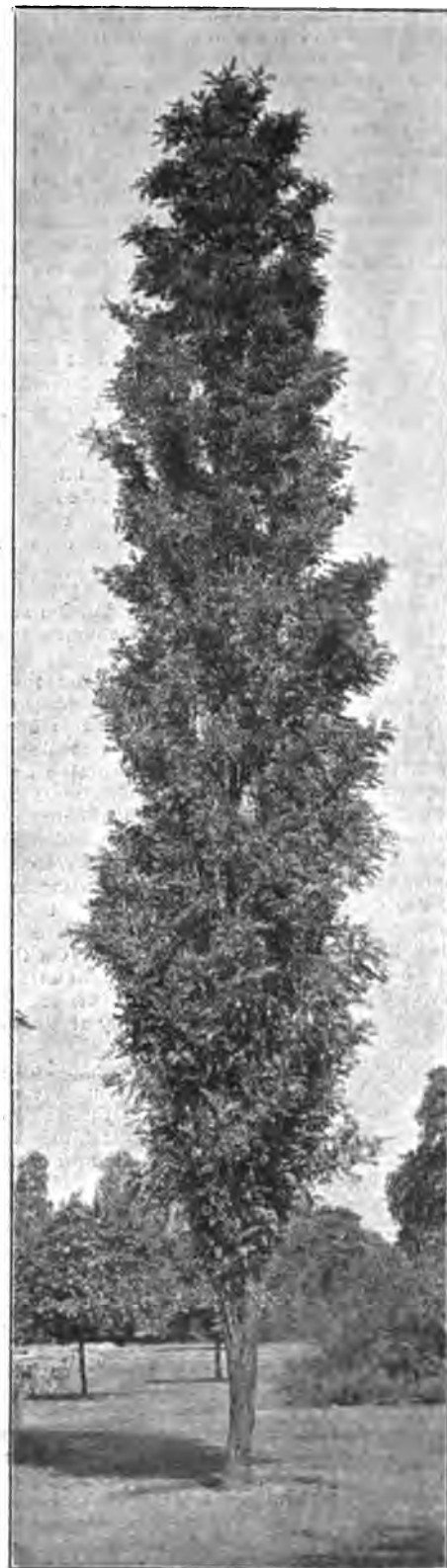


FIG 69.—*ROBINIA PSEUDACACIA* VAR. *FASTIGIATA*.
(For text see page 150.)

ably Clumber, The Dell, and Dover House, now stand him in good stead; and I have no doubt were the principals under whom he served to see the garden now under his charge they would be highly pleased with the results of the performances of their old pupil. J. F.

THE STERILISATION OF SOIL.

(Continued from page 130.)

LEGUMINOUS PLANTS.

ANOTHER method by which free nitrogen is reclaimed from the atmosphere is by the combined action of certain species of bacteria and some of the higher plants. Green-leaved plants, other than those of the great family of Leguminosæ and a few others, are unable to make use of the free nitrogen of the atmosphere. It has been found, however, that Beans, Clovers, Peas, and other leguminous plants growing in soil poor in nitrogen obtained this substance from some source other than the soil in which they grow. This nitrogen has been found to be derived from the atmosphere. A leguminous plant develops upon its roots small nodules or root tubercles, and these are found upon microscopic examination to contain little colonies of bacteria. The plant and the bacteria together succeed in extracting the nitrogen from the atmosphere, which permeates the soil, and becomes fixed in the tubercles and the roots in the form of nitrogen-compounds. The result is that after a proper period of growth, the amount of fixed nitrogen in the plant is found to have decidedly increased.

The food cycle is a complete one. The food matter leaves the soil to enter the plant, from the plant it passes to the animal, from the animal to the bacterium, and from the bacterium through a series of other bacteria back again to the soil. Thus the condition of Nature and the existence of life is based upon the ubiquitous presence of bacteria, and upon their continual action and re-action in connection with both destructive and constructive purposes.

For the micro-organisms to carry on their work successfully, there must be a sufficiency of oxygen, warmth, moisture, and salifiable base in the soil. The soil must be permeable to gases, or the organisms will not develop and carry on their work. Moisture also must be present, but not in excess, for this will prevent the air from penetrating into it, and the organisms then work slowly or not at all. Warmth is all important, for, according to Schloësing and Müntz, soil-bacteria develop quickest at 99° Fahr., and are extremely feeble at a temperature below 40° Fahr., or above 122° Fahr. On the other hand, the fermentative bacteria, as in the case of those found in silos, and in fermenting beds and manure heaps, grow rapidly at a temperature of 140° to 160° Fahr.

The bacteria affecting agriculture and horticulture, so far as nitrate production is concerned, comprise those engaged in the decomposition of nitrogenous matter; the nitrifying organisms whose work is to oxidise the products of previous decomposition into nitrites and then into 'nitrates,' and the nitrogen-fixing bacteria that appropriate the atmospheric nitrogen. They first thrive at a temperature of 140° to 160° Fahr., the nitrifying are most active at a temperature of 99° Fahr., and the nitrogen-fixing species carry on their work successfully at 50° to 65° Fahr. What, then, must be the effect of steaming or baking soil containing the all-important bodies known as bacteria?

STEAMING, BAKING AND SCALDING SOIL.

Steaming may mean any temperature from 212° to 1,146° Fahr., baking implies any heat above the normal up to a temperature of 1,141° Fahr., the heat of a common fire (Daniell), and scalding, a very old method of so-called sterilisation, any temperature above the ordinary up to 212° Fahr.; thus the maximum heat of scalding is the minimum temperature of steaming, and baking is seldom carried beyond that heat (212° Fahr.).

The process of scalding is performed wholly from above, that is, the soil or compost has the boiling water poured upon it, and this procedure means that whilst the immediate surface may receive the water at little less than 212° Fahr., the heat will gradually diminish as the

water penetrates or sinks into the soil, so that at a foot depth it certainly will not raise the temperature of the soil above the mean of the two—the boiling water (212° Fahr.) and that of the soil (say, 60° Fahr.), or 128° Fahr. This is 4° Fahr. more than the temperature (122° Fahr.) at which soil bacteria become, as we have seen, extremely feeble.

In baking the heat is not applied from above, except in the case of paring and burning, or burning rubbish or weeds on the surface, which practically sterilises the places of fire to the extent of prejudicing the crop, except as regards legumes, Clover, for instance, growing well where there has been bonfires, so that either the free nitrogen utilising micro-organisms are not killed, or the micro-organisms exist in the plant, that is, in the Clover seed. Baking may be done



FIG. 70.—PLEIONE YUNNANENSIS: FLOWERS ROSY-LILAC.

on a hot plate, or even in an oven or furnace, which in either case means that the soil receives greater heat at the part in contact with the hot plate, or at the outside of the compost in the case of the oven or furnace. When turves, for instance, are placed with their grass sides on a nearly or quite red-hot plate, over an improvised furnace of loose bricks outdoors, the turves being about 3 inches thick, and allowed to remain until the soil or upper surface is so hot that the hand cannot be comfortably placed upon it for more than a minute, there is not a heating of that part higher than 140° to 160° Fahr., or the temperature at which the fermentative bacteria not only live, but grow rapidly. In an oven or furnace the outside of turves may be browned, but the inside, as in a loaf of bread or a pud-

ding, is not nearly so highly heated. The heat of this may be 180° to over 212°, but, as a rule, the compost being only baked on the outside, and then withdrawn, it is not more than 160° to 180° Fahr. inside, so that the putrefactive micro-organisms, though certainly prejudiced, as well demonstrated in the case of overheating of fermenting materials, or dung heaps, may not be destroyed, but the subsequent fermentation in case of the hotbed or manure is relatively feeble, and the putrefaction of organic matter in baked turves takes place very slowly for a time, the heating having a sort of preservative effect on the organic substances, so that baked soil does not give as good immediate result in growth as compost from similar turves that have been stacked until all vegetation has been reduced to the condition of mould and the decomposition carried to the extent of a large formation of nitrates of lime, potash, and soda in the heap. George Abbey.

(To be continued.)

PLEIONE YUNNANENSIS.

A LITTLE more than twelve months since Messrs. Sutton exhibited before the Orchid Committee specimens of this very pretty species which was referred to the Scientific Committee, where it at once received a botanical certificate as a new and interesting species in gardens. Shortly after this Mr. Rolfe described and figured the species in the *Orchid Review*, 1906, p. 81, fig. 10. The history of the plant and of its original discovery in the mountains of Yunnan by Mr. W. Hancock is given in the publication above cited. Quite recently we received from Mr. James Edwards a photograph taken by him from a plant growing in the collection of H. J. Elwes, Esq., with the information that it was grown in an intermediate house. The flowers are of a rosy-lilac colour and borne on a long stalk, hence it is suggested that the plant may be useful to hybridists as affording a means of lengthening the stem in some of its congeners. Whether that would be any improvement is a matter of individual taste. In any case *P. yunnanensis* is an interesting addition to a beautiful genus.

TREES AND SHRUBS IN SCOTTISH GARDENS.*

(Continued from page 118.)

DUNKELD.

No true arboriculturist would pass Dunkeld for the first time without making a pilgrimage to the two famous so-called "parent" Larches standing near the old cathedral. [See *Gardeners' Chronicle*, Feb. 12, 1876, p. 209.] They are the survivors of five trees planted there in 1738 by the then Duke of Atholl. It is a matter for regret that one of them is now dying, having, it is believed, been struck by lightning. The dimensions of the other are given on a tablet at its base: Height, 102 feet; girth at 3 feet, 17 feet 2 inches; girth at 68 feet, 6 feet 1 inch. Near the house are several other magnificent Larches, scarcely, if at all, inferior to this—one in particular was noticeable for its enormous bulb-like base, 8 feet in diameter.

Dunkeld is the original home of the Larch in Britain in more senses than one. It was here that the first plantations on a large scale were made, and the names of successive Dukes of Atholl in the 18th century will always be remembered as the pioneers of this branch of forestry. According to Hunter, in his *Woods, Forests, and Estates of Perthshire*, plantations of 27 millions of Larches were made by the fourth Duke alone—still known as "The Planter."

As is well known, Dunkeld is situated in a district of singular natural beauty, and the grounds are amongst the loveliest in Scotland. Lofty precipitous hills rise around them, and a charming grassy walk, broad and closely mown, winds by the side of the rushing Tay. The collection of Conifers is being added to, but the number of species represented by unusual

* Contributed to the *Kew Bulletin of Miscellaneous Information* by Mr. W. J. Bean.

specimens is not great. The common Silver Fir, however, is in magnificent condition; one of them is estimated to be between 140 and 150 feet high. At Kew this tree can only be kept alive for a few years. There is also a fine *Thuja dolabrata*, 20 feet high, and not showing its usual disposition to become thin and lanky at the top. Of numerous well-grown hardy shrubs I noted *Kalmia latifolia*, 9 feet high and 12 feet through, finely in flower, and *Viburnum prunifolium*, 20 feet high.

BLAIR CASTLE.

This is another of the seats of the Dukes of Atholl, and, like Dunkeld, is one of the most beautiful places in Scotland. The gardens are picturesque, with fine views and very pretty avenues and drives, and to the west of the castle there is a magnificent gorge and a waterfall. An avenue of Silver Birch is so delightful that one wonders this tree is not more often used for minor avenues. The kitchen garden, too, is, I think, the most charmingly situated of any I have seen. It covers the opposite slopes of a valley, the bottom of which is filled by a large piece of water with islands in it. The grounds are furnished with many fine trees, but in size these are not equal to others elsewhere mentioned in these notes. There are several Larches here said to have been planted, like those at Dunkeld, in 1738. A most noteworthy tree is a specimen of the distinct and elegant *Abies magnifica*, 60 feet high, and in perfect health and form. *Abies Nordmanniana*, planted by her Majesty Queen Alexandra in 1872, is 45 feet high; and *A. nobilis*, planted by her six years later, is the same height. Both here and at Dunkeld *Larix leptolepis* is thought to be a promising forest tree. A plantation of this species mixed with a few others is making excellent growth; the trees were planted 17 years ago and some already girth over 2 feet.

INVEREWE, ROSS-SHIRE.

The house of Inverewe was built by Mr. Osgood H. Mackenzie in 1864 on what was then a bare hillside clothed with nothing bigger than heather and bracken. It is now surrounded at the back and sides by thick woods, 60 feet and more high, and gives an excellent example of what can be done, and what results obtained, in one man's lifetime—and he still in hale middle life. Mr. Mackenzie's garden, although not a large one (it is worked, I believe, by one or two men), has in recent years acquired a reputation as being one of more than ordinary interest. It is situated within a short distance of Poolewe, on the shores of Loch Ewe, and in the great parish of Gairloch, Ross-shire. It is, consequently, 20 to 30 miles farther north than Inverness. Yet there are growing here in great luxuriance trees and shrubs from Chili, New Zealand, South Africa, and the Himalaya, which near London have to be grown under glass. The climatic conditions, therefore, must be very similar to what obtain in S.W. Ireland and Cornwall, although no doubt the mean annual temperature is considerably lower.

In approaching the house one is struck by the number of Eucalypti sprinkled on the outskirts of the wood. They are mostly *E. cocifera*, and although but 10 years old are now 35 feet high. An interesting experiment might be made in this or some similar part of the country by planting an acre or two of this Eucalyptus, *E. Gunnii* and *E. urnigera*, under forest conditions. Nothing, except perhaps Poplar, could be got to grow faster, and the reproduction of an Australian gum-tree forest on even a small scale would be particularly interesting. It is also not improbable that the timber would prove of some value.

Mr. Mackenzie's rarer shrubs are planted in clearings of the plantations near the house. They are consequently well sheltered. Among Himalayan plants a representative lot of Rhododendrons have been planted, but although very healthy they are yet small. *Buddleia Colvillei*, however, the finest of all the *Buddleias*, was in flower. Since this species flowered for the first time in the British Isles with Mr. Gumbleton, near Cork, in 1892, it has done so in several other places in Ireland and England, but Inverewe must be one of the first places where it has flowered in Scotland. It was growing quite in the open.

There is a goodly number of New Zealand and Tasmanian plants here too, and a suggestive

indication of the character of the climate is afforded by the way in which they thrive. *Veronica*, for instance, are coming up over the place from naturally sown seed, and *V. salicifolia* is 7 feet high. Rich as Scotland is in her Conifers, one would scarcely expect to find *Podocarpus Totara*—the "Totara" of New Zealand, and perhaps the most valuable of its timbers—growing out of doors. Yet here it is in perfect health. A plant of *Billardiera longiflora*, 8 feet high, and trained up a tree trunk, was very prettily in flower, but it is even more attractive when followed by the crop of bright violet-blue berries. *Olearia Traversi* and *Leptospermum lanigerum* were both 8 feet high, and *Correa alba*, on a wall, was 6 feet high. *Olearia macrodonta* has, I believe, been very fine this year in Ireland and other mild districts. A fine bush, 14 feet in diameter, and some smaller ones were simply masses of white flowers.

Of Chilian shrubs I noted the following:—*Lomatia ferruginea*, often known as *L. pinnatifolia*, very healthy (I learnt that in another Ross-shire garden it was 10 feet high); *Mutisia decurrens*, the rare climbing Composite, in good condition; *Abutilon vitifolium*, 10 feet high, and flowering freely; *Azara Gilliesii*, *Escallonia pterocladon* (very charming here as elsewhere in Scotland), *Cestrum elegans*, *Tricuspidaria*, *Eucryphia cordata*, *Desfontainia spinosa*, and *Fuchsias* as hedge plants.

Of species from the Cape of Good Hope, *Phygellus capensis*, a bush 7 feet high, and a very healthy *Freylinia cestroides* were the most noteworthy that I saw.

DRUMMOND CASTLE.

The ancient seat of the Earls of Perth is about three miles out of Crieff, being set on an eminence and approached by a long narrow avenue of Beech and Lime. It is now one of the seats of the Earl of Ancaster, but the present residence is a modern building quite separate from, but close to, old Drummond Castle. This latter building (or, rather, what remains of it) is still in perfect repair, and from its highest tower a glorious view is to be had: mountain in the distance, wooded country and loch nearer, and, close beneath, the unique formal garden of Drummond. This garden, which is of an imposing and elaborate design and admirably kept, was originally planned and carried out in 1703 by a former proprietor and his gardener named Kennedy. The original design has been maintained for over 200 years, although additions have been made. The beds and masses are in geometrical form—triangular, circular, &c.—and they are largely filled with shrubs of various sorts kept low and flat, whilst the paths are bordered with a variety of shrubs clipped into narrow, columnar shape. These columnar trees are as good as any of the kind I have seen; they are now 80 years old, in excellent health and perfectly furnished. The plants used are Box, Yew, Purple Oak, Fern-leaved Oak, *Thuja occidentalis*, and the golden and silver varieties of Holly. The effect of the whole is impressive, especially when seen from the castle on its abrupt eminence above. This was, no doubt, the point of view of the original designer, for, like all examples of this type of gardening, it is the view as a whole that constitutes its chief *raison d'être*. Seen in detail, its lack of variety, the absence of light and shade, and its general monotony are apt to weary.

But the formal garden, whilst the chief feature at Drummond Castle, is not the only one. The fine Yews planted in 1703 are now enormous specimens with trunks 8 to 10 feet in circumference, and both Conifers and "hardwoods" grow finely here. Wherever one goes in Perthshire one hears about the great storm of November 17, 1893. Patriarchal trees that had withstood the gales of centuries succumbed that night, and whole plantations were levelled as if the trees had been so many nine-pins. Evidences of this terrible storm are to be seen even now in many parts of the country—uprooted tree stumps, decaying prostrate trunks, and bare hillsides. At Drummond a noble *Abies pectinata* was blown down, but the stump, 3 or 4 feet high, still stands where it grew. It shows that the tree was 210 years old and that its trunk was 6 feet 6 inches in diameter; it contained 1,010 cubic feet of timber. This must have been nearly, if not quite, the largest common Silver Fir in Britain of which there is any record.

An enormous Beech near by was seriously injured by the same gale; the trunk of this tree girths 19 feet 5 inches at its narrowest. Many other trees are in good condition here, but are not so notable as those seen elsewhere and mentioned in other parts of these notes.

(To be continued.)

The Week's Work.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

The Fig.—Unprotected trees, even in favoured Devon, have felt the severity of the winter. It will now be safe, however, to remove the protective material in order that the necessary pruning may be accomplished. Shoots that are more or less crippled by frost should be cut out entirely, if they can be spared, otherwise the damaged points should be shortened to an uninjured node. The embryo fruits can now be seen, and pruning must be regulated so as to preserve as many as possible. The old adage, "A pruned Fig tree is always barren," is scarcely correct, yet proper curtailment of the roots and extra care in disbudding dispenses largely with the need for the knife, and it is certain the less the latter is used the better will be the crop. In training, of which the fan shape is the best, allow a space of 8 inches between each shoot, for this will allow young growths to be "laid in" later where necessary. The Fig will bear good crops of fruits for several years without top-dressing, providing the trees are well fed with liquid manure during the time the fruits are swelling. This is much better practice than giving an annual top-dressing of rich soil, which would promote rank growth rather than an increase of crop. Top-dressings or mulchings should be applied in summer time while the fruits are swelling. At the present season fork in a light dressing of wood ashes and lime without disturbing the roots.

Strawberries.—These plants have also suffered from the effect of frost and cold cutting winds, which have turned the greater part of the older foliage quite brown. Cut away all these injured leaves, and destroy any weeds that are present. Young Strawberry plants are liable to become lifted out of the soil by frosts; they should therefore be made secure by treading.

The Pear Midge.—The larvæ of this pest lies buried beneath the ground under the trees from June to early April, at which time the flies emerge and attack the blossom. On cultivated ground it is possible to destroy the grubs by turning the top spit of the soil upside down during the winter and early spring months, and then making it very firm, so as to prevent them coming through just when the trees are in flower. A surface dressing of kainit in the month of June has also been recommended as a destroyer of this insect. This dressing may well be applied on grass land after it has been mown closely at the base of the trees. I have tried spraying before the flowers open, and again whilst they were in bloom, but with little success. Varieties especially liable of attack are Winter Nelis, Easter Beurre, General Todleben, and Marie Louise. By picking off the affected Pears on small and medium-sized trees and burning them, scores of the tiny white maggots may be destroyed.

Raspberries.—Shorten any canes that the frost may have injured, to a plump bud. Uninjured canes should be pruned to a desired height. Whilst it is inadvisable to allow recently planted canes to bear fruit the same season as planting, there need be no hurry in cutting them down, but rather wait until the new growths from the base reach a height of about 6 inches, when the old cane may be cut to within that distance of the ground. Treated thus, one would hear less of newly planted canes refusing to grow satisfactorily in the spring.

The Loganberry.—This American introduction is worthy a place in all gardens, and stools may still be planted. It requires similar treatment to the Raspberry, but being a rampant grower, the canes should be planted 5 feet to 6 feet apart in the row, so that the large leathery foliage may have space to develop. The fruit ripens about the middle of July, and proves most useful

either for tarts, jellies, or jams. The berries remain in good condition a long time on the plants. We are training some canes on a high north wall in conjunction with the Red Currant. The Rathbun Blackberry requires similar treatment to the Loganberry.

Newly-planted trees, whether against the wall or in the open, should now have all necessary pruning and training performed. The question of pruning newly-planted trees is a debatable subject, but experience has taught me that trees whose roots have been more or less curtailed in transplanting need similar restrictions to their growths above, so that root and branch are somewhat equally balanced. Growths necessary for the proper formation of the tree should be cut back to within 9 inches of their origin; the remaining ones should be spurred back to within two "eyes;" growths under 6 inches in length may be left intact.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

Rose pruning.—In the milder parts of the country the coming week will be found a suitable time to prune most of the Roses. Where colder conditions prevail it will be wise to delay the operation for a week or more longer. Pruning of any sort should not be done during frosty weather. Unless the plants are in very good order, it will be found more satisfactory to use a pruning knife than the more expeditious secateurs. Each individual bush, even though of the same variety, requires different treatment, and it is therefore impossible to lay down any hard and fast rules for Rose-pruning. As a general principle, the stronger the shoot the less it should be pruned, and in dealing with such hybrid perpetuals as Abel Carrière, Duke of Edinburgh, Her Majesty, &c., stout growths made last season should be cut back to within about 6 inches of their starting point, and the weaker shoots on the same plant to within 2 or 3 inches. The less vigorous the leading shoot the closer back it should be pruned, so that such kinds as Alfred Colomb, General Jacqueminot, Marie Baumann, Madame Victor Verdier, &c., will flower all the better if their leading shoots are cut close back to a good, plump bud. Pillar Roses rarely require much pruning, it being, as a rule, sufficient to cut away the exhausted and dead branches. It is usually wise, however, to cut hard back all immature and weakly shoots upon Roses of any type.

Tea Roses, being more tender, should be left unpruned for three or four weeks longer. Although autumn is generally the best season for planting, it is often necessary, when dealing with cold, heavy soils, to delay the planting until the present time. Everything should be in readiness so as not to unduly expose their roots to the drying influence of the air. Plant firmly, and afterwards apply a mulch.

Edgings.—All blank spaces which may occur in box edgings should now be filled, well breaking up the old soil, and, if necessary, adding some fresh soil. Where there are no reserve plants, a strip on each side of the gap may be lifted, the plants divided, and used to fill up the vacant place. Any new edging necessary for herbaceous borders may now be laid. The fancy tiles sometimes seen are incongruous, and not to be recommended. The most harmonious edging to such borders is one composed of rough, local stone, broken to fairly even size and firmly laid. The spaces between them may be planted with a variety of dwarf, trailing plants, which will quickly cover the bare earth, and ramble partly over the stones, and also inwards between the taller-growing plants, forming a pleasant groundwork. If an edging composed wholly of plants is preferred, such species as Arabis and Aubrietia in variety, Double Daisies, Thrift, Gentianella, and dwarf Campanulas will be found suitable.

THE KITCHEN GARDEN.

By WILLIAM HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Sowing seeds.—Although the season for sowing early seeds is now well advanced, the weather until quite recently has been severe and altogether adverse to this important work. As recently as February 24 and 25, we registered as much as 15° and 18° of frost. In late localities and

on heavy soils very little seed-sowing can have been done in such conditions, therefore the sowing of such crops as advised in previous calendars must now be given the first consideration, in consequence of the satisfactory change that has taken place in the weather.

Broccoli.—A small sowing of such varieties as Michaelmas White, Shaw's "Winter" or "Self Protecting" should now be made, to be followed by another sowing at the end of the month or early in April. Early Turnips and Turnip-rooted Beet should also be sown in small quantities on a warm border, and given the protection of Spruce or Yew boughs, by simply laying them over the surface, and as these early sowings are by no means to be relied upon, further sowings must again be made at about the end of the month.

Cauliflower plants that have been wintered in frames will now require full exposure by day and increased ventilation at night, for they will by this time have become sufficiently hardy to withstand a few degrees of frost; continue to stir the surface soil frequently, and if a slight dusting of soot be given occasionally this will be of great assistance in keeping slugs in check.

Marrows.—Early Marrows, like all other vegetables that can be got in early, are much appreciated, and if seed of the Custard and Pen-y-Byd varieties be sown in heat, and either grown on in this way or planted out on a good hot-bed in a heated frame, they will produce good results.

Peas.—Dwarf varieties that were sown last November in sheltered positions will now be sufficiently forward to require the aid of short sticks. These will also afford considerable protection from any rough or cold weather which we may yet experience. Later batches that were sown in January or early in February will soon be ready for planting out in the open, and should now be getting well hardened in preparation for this. I prefer to place these in shallow trenches which have been previously got out and prepared by placing a layer of rotten dung at the bottom, and mixing a good dressing of wood ashes with the surface soil. If the Peas are planted thinly in these trenches, and short sticks are put to them at the time of planting, no further protection will be necessary, and the young seedlings will grow away without suffering a check.

Potato planting will be in progress in some of the more favoured localities, but bearing in mind the late severe frosts we have experienced the last two or three seasons, this should not be attempted without full consideration, and unless plenty of protection can be afforded the growths later on.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Trout rearing.—In addition to the scenic value lakes or streams may possess in public parks, they are also a great acquisition in being capable of affording under certain circumstances a number of additional pastimes for visitors. A pastime in point is fishing, and when this can be provided in a town park at a reasonable charge it is very popular. Needless to say, there is fishing and fishing, and its quality mainly depends upon the quantity and freshness of the water that has to be dealt with. If it has not a good circulation and is not of the very freshest character, it is at best only capable of supporting what are known as coarse fish, such as carp, chub, roach, rudd, and dace. On the contrary, if a lake is fed by a constant supply of good fresh water it should be suitable for stocking with trout. Anglers are generally agreed that few fresh-water fish give so much sport, or are so valuable for food, as the common brook trout; hence, whenever water is suitable for the maintenance of these, it should be stocked with them in preference to any of the coarse fish already mentioned.

Trout hatchery advisable.—It naturally follows that in public waters where a great deal of trout fishing is done, it is necessary to be more or less continually re-stocking. Under these circumstances, it generally means that either a large fee has to be charged to those who indulge in the sport, or that the authority who has charge of the water loses money by the provision of the fishing. To meet these difficulties—that is, to provide anglers with cheap but good

trout fishing without causing the town to be at a loss in consequence—there is nothing better than the establishment of a trout hatchery where practicable. To carry on such an institution successfully and at the minimum of cost, there are practically only two great essentials—a plentiful supply of clean fresh water and a stock of good breeding fish that can easily be captured when needed. Where these two requirements are fulfilled there is little difficulty in keeping the most heavily-fished waters well stocked by the aid of a hatchery. In one of the parks in this city we are fortunate enough to have a fresh-water lake 82 acres in extent which contains a plentiful supply of a good type of the brown brook trout. Although only 5s. per season is charged to anglers for fishing over this water—in consequence of which very large numbers avail themselves of the privilege—only once in fourteen years has it been necessary to pay for re-stocking it, and then only a very small sum was expended. The secret of the abundance of trout is that for a number of years past we have been carrying on a trout hatchery of our own, from which we have regularly stocked our lake and the adjoining brooks which run into, and from, it. As a short account of the methods adopted in carrying on the work of this hatchery may be of interest, and perhaps of service to some of the readers of this column, I propose to give a brief outline of our process of fish breeding.

Habits of the Trout.—Before describing this process, however, it may be as well for the benefit of those readers who are not familiar with this subject to mention a phase in the life history of the trout which will enable them the better to understand what follows. The brook trout, like its near relative the salmon, breeds during the winter months, and for this purpose, as a rule, travels up stream to the shallow gravel beds from about the middle of October to the beginning of January. The female trout (usually preceded by the male) burrows in the gravel near the surface of the water, lays her eggs over which the male sheds his milt, and then covers them up with the gravel. As copulation does not take place among fish the eggs are not fertile till after the milt is discharged in this way by the male, and it can readily be understood that it is not always possible for the milt to reach the eggs before it is carried away down stream, hence a large percentage of the trout ova laid in a wild state is infertile. A further check to the natural process of stocking streams and lakes is the fact that in addition to the ordinary enemies of trout ova that have to be contended with, trout themselves devour each other's eggs whenever they get the chance. Even the male trout, according to some observers, is as ready to eat the ova discharged by the female as to fertilise it. These facts show why it becomes necessary to artificially stock lakes and streams, which, although possessed of good breeding grounds, are not able to support the continuous fishing which generally takes place over public waters.

Percentages compared in the stream and in the hatchery.—It has been estimated that whereas in nature only about 2 per cent. of the ova laid by trout ever develops into adult fish, in a carefully managed hatchery which has plenty of roomy rearing ponds from 25 to 30 per cent. of the ova artificially incubated reaches the mature stage. This is surely an indication that fish hatcheries have a great future before them.

MR. JAMES MACDONALD, superintendent of the Montrose public parks and gardens, has been appointed superintendent of the Allendale Cemetery, Aberdeen. The appointment involves the care of one of the most beautiful cemeteries in Scotland. Mr. Macdonald was formerly a director of the Royal Horticultural Society of Aberdeen, and also a director of the Aberdeen Chrysanthemum Society, being one of the founders of this last-named society. At the shows of the Royal Aberdeen Society and the Aberdeen Chrysanthemum Society he was a successful exhibitor.

MR. JAS. WHITE.—On Wednesday, February 27, in the Bothy at Southwark Park, the superintendent, Mr. James White, was presented with a marble timepiece by the employees as a mark of esteem and respect on his promotion to a higher rank in the service of the London County Council. Mr. White has been promoted to be first-class superintendent at Brockwell Park.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burtord, Surrey.

Shading.—Already the warmth from the sun has on several occasions been sufficient to raise the atmospheric temperatures indoors considerably higher than is necessary for some of the plants, especially when it has shone during the middle hours of the day on those houses which have a direct southern aspect. The collection, as a whole, will require to be more closely shaded at this season than in the autumn; the young growths and leaves, which are now starting, being more soft and tender, are easily disfigured if exposed to strong sunshine. As regards shading generally, it is better to be on the safe side, and not unduly to expose rare and valuable plants to the sun's influence, at the same time it is advisable not to allow the blinds to remain down longer than is really necessary. Also, at this season, cold winds alternate with bright sunshine, and the external air, being perhaps several degrees below 40°, is unsuitable to be admitted with sufficient freedom to keep down the temperatures. On such occasions use the blinds. When the external air is above 45° and moist, afford more ventilation, and shade with discretion. These remarks are especially applicable to the cooler divisions, which contain such species as *Cypripediums*, *Odontoglossums*, *Oncidium*, *Masdevallias*, &c. The Mexican house, if facing to the south, should have a thin blind, or the glass should be lightly stippled when the sun is really strong; if otherwise, no harm will accrue to the plants for several weeks to come. The *Cattleya* and intermediate houses will only require shading for an hour or so on that side of the roof which is exposed to the sun's rays. The tall-growing *Vandas* of the tricolor and *suavis* section, and which are now sending up strong flower spikes, should receive a little extra water at the roots, and be kept well damped between the pots; these plants grow well in the *Cattleya* house, but they should be shaded independently of the other inmates, as they are liable to lose a number of their lower leaves if exposed for any length of time to the direct rays of the sun. *Bolleas*, *Pescatoreas*, *Huntleyas*, and *Warscewiczellas* should also be closely shaded at all times.

East Indian House.—Most of the plants in the East Indian house will also require protection from the sun, especially species of *Aerides*, *Saccolabium*, *Angraecum*, *Anæctochilus*, *Aracanthæ*, *Lowii*, *A. Clarkei*, *A. Cathcartii*, &c., that have recently been repotted or top-dressed. The different varieties of *Phalænopsis*, *Bulbophyllum*, *Cirrhopetalum*, *Megacelinium*, and the warm-growing *Cypripediums* will require similar attention. Other species as those of *Schomburgkia*, *Cyrtopodium*, *Lissochilus*, *Anellia*, *Eulophia*, many *Dendrobiums*, terete-leaved *Vandas*, *Brassavola*, *Renanthera coccinea*, *R. Storei*, &c., appreciate a moderate amount of sunshine at all times. The handsome *Renanthera imschootiana* thrives best when elevated in a light position in the cool intermediate house. In the same structure the broad-leaved *Maxillarias* and the Brazilian *Miltonias* should be carefully shaded whenever the sun is bright, the foliage of the latter species being liable to turn far more yellow than is desirable.

Calogynus.—The warm growing *C. pandurata*, *C. asperata* (Lowii), *C. Meyeriana*, *C. pelastæ*, and *C. Rossiana* are strong-growing plants and should be re-potted at this season. A rather damp, shady corner of the East Indian house will suit them admirably. Among the large number of species which thrive best in an intermediate temperature are the following: *C. elatior*, *C. barbata*, *C. Gardneriana*, *C. graminifolia*, *C. simbricata*, *C. conferta*, *C. Swainiana*, *C. Veitchii*, *C. corrugata*, &c. These are beginning to grow, and may now be potted should any of them require more root-room. *C. Massangeana*, *C. tomentosa*, *C. Dayana*, and *C. flaccida* are species which produce overhanging racemes of blossoms; therefore, basket or shallow pans are to be preferred, as when suspended from the roof their flowers are displayed to perfection. The last-named species being now at rest should not be disturbed until after it has bloomed. At the present time keep the compost rather dry, and when the spikes appear, afford water copiously. All the species mentioned grow well in a mixture of peat and sphagnum-moss, pro-

viding it is well drained; but as neither of them make large quantities of roots, their receptacles should be small as a rule. Such species as *C. speciosa*, *C. s. alba*, the new *C. Lawrenceana*, *C. cristata* and its varieties *Lemoniana* and *hololeuca*, &c., which are coming into bloom, should be well supplied with water at the root until the flowers open, taking care not to wet the flowers, as they are liable to become spotted.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Carnation Souvenir de la Malmaison.—Young plants that have been wintered in small pots should now be given a final shift into others of 6-inch diameter, which size is, as a rule, sufficient for the plants in their first season of flowering. A suitable compost is formed of three parts good turfy loam and one part leaf-soil, some old mortar rubble, charcoal and sand, and a 48 size pot full of soot to each barrow-load of the mixture. Water judiciously at all times, and especially after re-potting, for very little moisture will be required at the roots until they have become active in the new soil. If any trace of rust fungus is seen, cut off and burn every particle of the affected foliage. These plants should be kept in a fairly cool atmosphere, and they will then provide a succession of flowers when those of the older plants are finished. Established plants may be hastened into flower by providing a temperature of 55° to 60°, with a little ventilation at all times; on no account allow the atmosphere to become close and humid. *Duchess of Westminster* flowers, naturally, several weeks earlier than most varieties. *Maggie Hodgson* has large dark-coloured flowers, and is a variety worthy of notice.

American Tree Carnations.—Early batches of these plants will now be ready for transferring singly into 3-inch pots, a light sandy soil being recommended as a rooting medium. Place the plants on a shelf near to the glass in an intermediate temperature, and endeavour to obtain them as robust as possible early in the season. Continue the propagation of these plants. Two of the best varieties are *Britannia*, a grand scarlet flower, and *Mrs. H. Burnett*, a lovely shade of salmon-pink.

Fuchsias.—Pruned plants placed in a moderately warm house will soon provide suitable growths for the making of cuttings, which, if inserted in light sandy soil in a propagating frame, will quickly form roots, and provide good plants for flowering in the autumn months. Young, actively-growing *Fuchsias* intended to be grown as large specimens should be transferred to larger pots, and afterwards be placed in an intermediate temperature. The potting soil should consist of a liberal mixture of equal parts turfy loam, leaf-soil, and old Mushroom-bed manure, with the addition of sand. When the pots are filled with roots, strict attention must be given to the matters of watering and feeding.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

The Vinery.—The planting of one-year-old vines, in both new structures and in older houses that are being re-planted, should be pushed on, as the month of March is the best time for this work. The border, which should be 3 feet in width and 2 feet in depth, should have a solid bottom of concrete, and on this should be placed a layer 8 or 10 inches in thickness, of broken bricks, coarse lime rubble, or similar material. On this a layer of fresh whole turves with their grass sides downwards should be laid, and upon this the compost, which should consist of good turfy loam, roughly chopped, a liberal quantity of lime rubble—which has been passed through a sieve with a half-inch mesh—and some wood ashes. To each three tons of this compost add about 1 cwt. of coarse grade vine- and plant-manure. Mix the whole thoroughly together, and when ready fill in the border, making it firm as the work proceeds. The roots of young vines should be well soaked with tepid water previous to planting. Spread out the roots and plant the vines at a distance of 3 feet 6 inches apart, and at a depth of about 6 inches below the surface of the soil. Secure

the canes loosely to a stake, and when finished give a good soaking of warm water, and afterwards a mulching 2 inches deep of moss-litter manure. Damp the paths two or three times daily, and keep the house close, and warm with sun heat. Do not apply fire heat unless the nights are very cold. Allow the vines to break slowly.

Early Melons should now be ready for planting in the borders in the pits. The compost should consist of chopped turfy loam, heavy in texture if obtainable, as Melons succeed best in a rather stiff loam. Add some sifted lime rubble to the soil, and to each barrow-load of this mixture add a 5-inch potful of fine grade vine- and plant-food. Place turves grass side downwards over the drainage material, next a 2-inch layer of horse manure, and then the compost to a depth of 18 inches. Make the soil very firm, and as soon as it has become warmed to the temperature of the pit, plant the Melons 18 inches apart, taking care not to place the neck of the plant below the surface of the soil. Train them as single cordons, allowing two or three fruits to develop from each plant. Give them a copious watering with water at a temperature of 70°, and damp the plants twice daily with tepid water through a fine rose. Maintain a temperature in the pit of 60° at night time and 70° by day, with a steady bottom heat of 75°.

Late Peach and Nectarine trees in houses which have been cleansed, and whose shoots have been pruned and tied to the trellis, are now in readiness to be started into growth. If any signs of bud-dropping appear, test the borders with the soil tester, and if dry, give a good soaking with tepid water. Open the ventilators and leave them open by day and night.

Fruit-trees in pots, including Plums, Nectarines, Pears, &c., intended for the first crops should now be selected from the stock of orchard house trees. Place the pots in a row on the floor of a Peach-house, in which artificial heat is afforded at night time only. Water carefully, a caution which should always be observed in the case of dormant fruit trees in pots.

THE APIARY.

By CHLORIS.

Artificial feeding.—Many beekeepers imagined that because the weather was remarkably fine during September last that there was no need to feed, and if they do not hasten to repair the neglect they will have trouble during the coming summer. The winter has, on the whole, been severe, and the bees may not have consumed so much food as they would have done during a warmer winter; still, attention to the food for the remainder of winter and early spring is imperative. It is of the utmost importance that no food of a stimulating nature should be given—that is, no honey and water or syrup must be placed above the frames. This would induce early breeding, and should we experience another cold snap, many of the bees would be killed.

The entrances to the hives need attention, as they may become blocked by dead bees, and this will prevent the others from taking a cleansing flight when the weather permits. This is of the utmost importance to the well-being and health of the colonies.

What to feed on.—The very best food now is a frame of sealed honey, containing, as it does, the natural food of the bees, but if this cannot be had then substitute candy. This is generally made by boiling the sugar until it is set, so that its surface may be easily scratched with the finger nail. It may also be made by kneading crushed loaf sugar in warm honey until the consistency of a stiff dough has been reached.

Dampness.—It is well to examine the hives to discover whether the roofs have been leaking; if so, the quilts must be changed and the damaged roofs repaired. There is no more fruitful cause of dysentery among bees than dampness. Dysentery is seen in the fact of the excreta of the bees being found on the alighting boards.

Examine the colonies on a bright, warm day when the sun is shining, and do it as expeditiously and as thoroughly as possible, so that the true state of each hive may be ascertained.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MARCH 11—Ann. meet. Unit. Hort. Ben. & Prov. Soc. at R.H. Hall, Westminster.

WEDNESDAY, MARCH 13—Winter-flowering Carnation Soc. Exhib., Regent's Park. International Hort. Exhib., Nice, opens.

SATURDAY, MARCH 16—German Gard. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—41° 0'.

ACTUAL TEMPERATURES:—LONDON.—Wednesday, March 6 (6 P.M.): Max. 50°; Min. 36°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 7 (10 A.M.): Bar., 30.2; Temp., 46°; Weather—Overcast.

PROVINCES.—Wednesday, March 6 (6 P.M.): Max. 47° Cornwall; Min. 41°, England, N.E.

SALES FOR THE ENSUING WEEK.

MONDAY—Roses, Perennials, Lilliums, Azaleas, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY—Duplicate plants from the "Chillingham" collection of Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

WEDNESDAY—Azaleas, Border Plants, Lilliums, Palms and Plants, at 11, 4,000 Roses and Fruit Trees, at 1.30 and 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris. Plants, Roses, and Lillies, at Steven's Rooms, King Street, Covent Garden, W.C.

THURSDAY—The "New Hall Hey" Collection of Orchids at New Hall Hey, Rawtenstall, near Manchester, by Protheroe & Morris, at 1.

FRIDAY—Lilliums, Herbaceous Plants, Roses, Azaleas, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12; Choice Imported and Established Orchids in large variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Plant Nomenclature.

It must not be thought that botanists and gardeners have any monopoly in the matter of unpronounceable names. The chemists have followed the plan, the principle of which (allowing for some exceptions) is objectionable. A name, as a rule, should be nothing more than a name, a convenient means of speaking or writing of some thing or some organism, as separate from some other thing or organism. Previous to the time of Linnæus, botanists made use of a descriptive phrase containing perhaps a dozen or more words. Linnæus adopted the plan of giving to each animal or plant two names, one that of the genus (the surname), the other that of the species, the specific name analogous to the baptismal name. That is simple and intelligible, and we do not find, in practice, that those who are really interested in plants and want to know something about them, even if only for commercial purposes, have any particular difficulty in accommodating themselves to the use of a "barbarous" nomenclature. Every science, every trade has its own vocabulary, which has to be learnt, and the convenience of which, when learnt, completely outweighs the initial difficulty of acquiring it.

Complications arise when endeavours are made to make the name express some quality or attribute possessed by the plant or animal. If we could be sure that the particular attribute was absolutely peculiar to the plant, then it would be convenient to adopt such a qualifying name. Thus if only one Rose were spiny, it would be convenient to call such a Rose, *Rosa spinosa*, but, as a matter of fact, nine-tenths, or perhaps more, Roses are spiny, and to name one species *R. spinosa* is misleading. There are many Roses, for instance, that are quite as spiny as that called "spinosissima." The same objection applies to the use of vernacular names. There are plenty of Roses in Scotland besides that one called the "Scotch Rose," which, so far from being confined to Scotland, is met with all over the northern hemisphere of the old world! As a general rule (subject to a few exceptions), popular or vernacular names are a nuisance and a hindrance to study, and, of course, they are mostly useless when dealing with plants of another country where the language is not the same as our own. We have said, however, that there are certain cases where a popular name is more convenient than one of a more scientific character. We take an illustration from the druggist's shop. There can be no doubt what is meant by "calomel" or by "corrosive sublimate," respectively, but these substances have been called chloride, bi-chloride, sub-chloride, perchloride of mercury and mercuric subchloride. Former generations adopted one of these epithets, the moderns make use of another, the change being necessitated by increased knowledge. Calomel is now subchloride of mercury, corrosive sublimate is perchloride of mercury, but the two vernacular names have fortunately never been changed in accordance with the progressive increase of scientific knowledge.

We stated at the beginning of this note that gardeners or botanists had no monopoly of hard names. We give an illustration of this assertion taken from the *British Medical Journal*, one, moreover, which amply justifies our contention that a name should be a name, a name only, and not a description.

"The systematic names by which certain compounds are known to chemists are usually of a length that precludes their use for ordinary purposes of commerce or in prescribing; such names, for instance, as dipar-anisylmonophenetylguanidine or diethylglycocollpara-amidohydroxybenzoylmethylester, however informing to the organic chemist, are clearly impracticable for ordinary use."

We do not think the Orchid-hybridists even can beat these.

OUR SUPPLEMENTARY ILLUSTRATION.—The photographs from which the supplement to this issue has been prepared depict very clearly two interesting scenes in the life of an Orchid collector. The upper picture shows a small mountainous village, which has been for a time the collector's headquarters. On his arrival he had sent natives to all the surrounding districts, and has succeeded in obtaining a large quantity of *Cattleya Trianae*, and with these he is just starting on an arduous journey to a river-port whence the plants can be shipped in cases. The photograph shows the only means of transportation that can be adopted in these mountainous districts. Each mule is laden with two large "panniers"

containing the plants. No roads exist, merely a track over range after range of mountains and hills, a rugged and oftentimes treacherous path, interrupted at frequent intervals by a river or mountain stream. When these are swollen by heavy rains the crossing becomes a matter of difficulty and of danger, and the collector considers himself fortunate if he arrives without loss of some of his plants, or even of his mules and their drivers—a by no means rare occurrence. On arrival at the river port, the plants are finally prepared for packing into cases for shipment to London, as is depicted in the lower picture. The central figure is Mr. LOUIS FORGER, one of Messrs. SANDER & SONS' principal collectors, who for nearly 20 years has travelled to and fro through almost all the countries of Southern and Central America, from the arid highlands of Mexico, the mountains of Colombia and Venezuela, to the great grass plains of the Argentine. As may well be imagined, he has met with dangers and difficulties, but his coolness and skill have never failed him. At one time a would-be assassin's bullet passed through a hut in which he was staying; at another he floated unharmed over the countless rapids of the Rio-Sao Francisco in a native canoe. Amongst many "finds" one of the most important was the re-discovery of *Lælia Jongheana*, and it was he who sent the *Nicotiana Forgetiana*, the parent of the several new hybrids of *Nicotiana* that have been distributed in recent years.

THE BOTANICAL MAGAZINE.—The plants illustrated in the March number are:—

ALOE PALLIDIFLORA (Berger), tab. 8,122.—A species which flowered in Sir THOMAS HANBURY'S garden at La Mortola, where it was obtained from the Berlin Botanic Garden. Its native country is not definitely known. The fleshy leaves are in tufts, brownish green, linear-lanceolate, with a long acumens, margins with scattered incurved pinkish spines; flowers numerous in branching panicles each about 2 cm. long, tubular, pinkish with streaks of a darker hue, lobes small, spreading, reddish.

BLEPHAROCALYX SPIRÆOIDES (Stapf), tab. 8,123.—A Brazilian Myrtaceous shrub with linear dotted leaves recurved at the margins and numerous yellowish flowers disposed in terminal, much branched cymes; berries purplish red the size of small peas. The plant is only known at present in its cultivated state. It requires warm greenhouse treatment.

PRIMULA DEORUM (Velenovsky), see *Gardeners' Chronicle*, 1905, vol. xxxvii, p 98, fig. 44. W. B. Hemslay, in *Botanical Magazine*, tab. 8,124.

CAIOPHORA CORONATA (Hooker & Arnott); *Sprague* in *Botanical Magazine*, tab. 8,125.—A trailing Loasaceous herbaceous plant with terete, decumbent stems covered like the foliage with stinging hairs; leaves on long stalks much divided; flowers solitary terminal on long erect stalks; flowers about 2 inches long and rather more broad, petals five, boat-shaped, white distinct, but forming a lobed cup-shaped corolla. It is a native of the Andes at altitudes of 9,000 to 14,600 feet from the Argentine Republic to Peru. The present figure was taken from seeds collected in Argentina by Mr. ELWES, but it had been previously introduced into gardens under the name of *Blumenbachia coronata*. The plant is decidedly attractive, but requires to be handled with caution.

PAPHIOPEDILUM VILLOSUM (Pfitzer) var. ANNAMENSE, Rolfe in *Botanical Magazine*, tab. 8,126.—A variety of the old *Cypripedium villosum* introduced from Annam by Messrs. SANDER & SONS, and differing from the type, which is a native of Burma, in its longer and narrower leaves and in the dorsal sepal, which is represented as whitish with the centre of the disc occupied by a large purplish blotch with veins of a darker hue, the whole edged with a narrow band of green. *Krw.*



ORCHID COLLECTING IN COLOMBIA FOR MESSRS. SANDER & SON.

ROYAL HORTICULTURAL SOCIETY.—*General Examination.*—The society's annual examination in the Principles and Practice of Horticulture will be held on Wednesday, April 10, 1907. Candidates should send in their names not later than March 25. Full particulars may be obtained by sending a stamped and directed envelope to the society's offices, Vincent Square, Westminster. Copies of the questions set from 1883 to 1905 (price 1s. 9d.; or 10s. a dozen) may also be obtained. The society is willing to hold an examination wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations will consent to supervise one on the society's behalf. In connection with this examination a scholarship of £25 a year for two years is offered by the society to be awarded after the 1907 examination to the student who shall pass highest, if he is willing to accept the conditions attaching thereto. The main outline of these conditions is that the holder must be of the male sex, and between the ages of 18 and 22 years, and that he should study gardening for one year at least at the Royal Horticultural Society's Gardens at Wisley, conforming to the general rules laid down there for students. In the second year of the scholarship he may, if he like, continue his studies at some other place at home or abroad which is approved by the council of the Royal Horticultural Society. In case of two or more eligible students being adjudged equal, the council reserve to themselves the right to decide which of them shall be presented to the scholarship.

—*School-Teachers' Examination.*—The society will hold an examination in Cottage Gardening on Wednesday, April 24, 1907. This examination is intended for and is confined to elementary and technical school-teachers. Medals and certificates are awarded and class lists published in connection with these examinations, and the syllabus may be obtained on application to the Secretary, R.H.S., Vincent Square, Westminster, S.W.

FLOWERS IN SEASON.—Mr. BEDFORD obligingly sends us from Straffan, Kildare, fine samples of *Galanthus plicatus* "Romeo," with very broad ($1\frac{1}{2}$ inch) plicate, glaucous leaves. The outer perianth segments are spreading, broadly oblong, fully an inch in length, pure white, the inner ones about half the length, overlapping so as to form a tube, white at the base, notched at the apex and marked in the upper part with a deep green band, edged with white. *Galanthus Imperati niveus* has oblong, linear, glaucous leaves half-inch across, folded in the middle (conduplicate), channelled on the upper surface with a prominent midrib beneath. Outer perianth-segments $1\frac{1}{2}$ inch long, linear-oblong, tapering at the base, inner segments oblong, truncate, notched white with a green heart-shaped blotch.

WINTER-DRESSING OF FRUIT TREES.—In place of the lime wash which is such a disfigurement to fruit trees, French fruit-growers are making use of lysol, a preparation of carbolic acid, in the following proportions: lysol 4 litres (1 litre = $1\frac{1}{2}$ pint); water 1 hectolitre = 22 gallons. This is freely applied to the stem and branches with a brush. It kills the insect pests, destroys the lichen (moss), and greatly contributes to the health of the tree.

COLONIAL NOTES.—*Report of the British Guiana Botanic Gardens* for the year 1905-6. Mr. BARTLETT records much useful work, somewhat hindered by drought. The herbarium specimens are receiving careful attention and a catalogue of them is being made.—*Annual Report of the Agricultural and Horticultural Society of India*, 1905. The president, Mr. EGGAR, speaks of satisfactory work and the completion of Rose fields containing over 3,000 healthy plants. The journal includes some valuable cultural notes intended to help local growers.

SECRET COMMISSIONS.—The first case, so far as we know, of the application of this law is one reported recently in the *Pharmaceutical Journal* as follows:—Secret Commission.—In the Wandsworth County Court on Monday, February 18, the plaintiff brought an action to recover from the defendant the sum of £68 4s. for pipes supplied. The case for the defence was that the purchase was arranged by one of the defendant's agents, who, the defendant had since discovered, was going to get $2\frac{1}{2}$ per cent. from the plaintiff for arranging the contract. The promise of this secret commission broke any agreement that had existed. Judge Russell upheld this contention, and gave judgment for the defendant, with costs.

TULIP.—Messrs. J. BACKHOUSE & SON send us a Tulip in which the scape, which usually bears a single flower at the extremity, divides into three branches, each bearing leaves and a terminal flower. At first sight the appearance is that of a fusion of flower-stalks, but successive sections across the stem, from the base upward, show that while it is undivided below, it becomes branched above.

NATIONAL SWEET PEA SOCIETY'S AFFILIATION SCHEME.—The committee has decided upon the following scheme of affiliation: Societies subscribing 10s. 6d. per annum are entitled to:—1, One of the National Sweet Pea Society's Silver Medals, to be offered as a prize for Sweet Peas only; 2, One copy each of the Society's *Annual* and other publications; 3, One ticket of admission to the Society's London Exhibition; 4,



FIG. 71.—MEDAL OF SWEET PEA SOCIETY.

To nominate one of its members to represent it at the annual and other general meetings of the Society. Committees wishing to take advantage of this scheme should make application to and forward a remittance to the Hon. Sec., CHARLES H. CURTIS, Adelaide Road, Brentford, Middlesex. We reproduce an illustration of the medal the Society is prepared to issue.

TOBACCO-RAISING.—Mr. HAWES, of the Royal Botanic Garden, Regent's Park, has now under his care a number of seedlings representing many of the finest commercial varieties of Tobacco, which it is hoped to display at the International Tobacco Show in April.

M. GLAZIOU.—The *Kew Bulletin* (No. 2, 1907) has succeeded in obtaining some information relating to this energetic collector, who died in March last near Bordeaux. M. GLAZIOU, it appears, was born in Brittany in 1828, and spent 35 years of his life in Brazil. He was director of the public gardens of the city of Rio. The extent of his collections in various provinces of Brazil may be estimated by the fact that he collected about 12,000 species represented by some 200,000 specimens, the first set of which went to von Martius and subsequent editors of the *Flora Brasiliensis*, and a large number are to be found at Kew.

THE NATIONAL POTATO SOCIETY.—The schedule for the forthcoming show has been issued, and it will be seen that the exhibition is to be held at the South-Eastern Agricultural College, Wye, Kent, on October 2, instead of five weeks earlier as first suggested. This arrangement is far better, and will tend to create greater interest in the event. Altogether there are 36 classes in the schedule, and a number of special prizes are announced, but the committee reserve the right to cancel classes if their funds are insufficient. Copies of the schedule may be obtained from the hon. sec., Mr. W. H. ADSETT, Hatton House, Great Queen Street, London, W.C.

ANNUITY FOR A GARDENER.—Mr. JESSE WILLARD, for forty-two years head gardener to the late Baroness BURDETT-COUTTS, at Holly Lodge, Highgate, has been provided with a pension of £105 a year by Mr. BURDETT-COUTTS, the husband of the late Baroness, who made no specific provisions in her will for her servants, knowing that Mr. BURDETT-COUTTS would understand her wishes in such a matter.

THE SURVEYORS' INSTITUTION.—At a meeting held on February 25 a paper was read by Mr. AUBREY J. SPENCER, barrister-at-law, on "The Agricultural Holdings Act, 1906." The next ordinary general meeting will be held on Monday, March 18, 1907, when the discussion on Mr. AUBREY J. SPENCER's paper will be resumed. The annual dinner of the institution will be held at the Whitehall Rooms, Hotel, Metropole, on Tuesday, April 16, 1907, at seven o'clock precisely.

OLD TRAFFORD GARDENS, MANCHESTER.—Only one vote was recorded against the project for changing the character of the Royal Botanical Gardens, Old Trafford, at the annual meeting of the proprietors held recently, and the gardens will therefore be leased to a company for 10 years at an annual rental of £2,000. It is proposed to convert the gardens into an amusement resort. The lease provides for the maintenance of the glass-houses, and the collection of plants. The palm-house is to be a tea-room, the long range of buildings running nearly the whole length of the western side, which were part of Manchester's great exhibition, will be used for restaurant, dancing-hall, and roller skating rink. There will be a new illuminated fountain and other attractions.

OENOTHERA.—The publication by MM. LEVILLÉ and GUFFROY of a monograph of this genus is announced. We shall be curious to see how the "mutations" from *O. Lamarckiana* are treated, and whether Prof. DE VRIES' "new species" are accepted by the monographers.

THE SOUTH AFRICAN EXHIBITION AND THE R.H.S.—Opinions were very much divided upon the question whether the admixture of Colonial products with the floral exhibits on Tuesday last, was an advantage or not. Those who were precluded from exhibiting felt sore at their exclusion, particularly when they saw that others had been admitted. Some who worked hard to secure a hall for horticulture were not well pleased to see it made use of for other purposes. Others were grateful for the break in the monotony of these exhibitions. An explanation was offered of the reasons why the change was made. We think we shall sufficiently gauge the prevalent feeling if we say that the verdict was "not guilty, but don't do it again."

THE LATE PROF. PFITZER.—We note the appearance of a short biography, by Herr G. FISCHLER, of the late ERNST PFITZER, of Heidelberg. The account of his life's work is made more complete by the addition of a list of his botanical writings, and the pamphlet also contains an excellent portrait of Herr PFITZER.

MENDELISM.—A second edition of Mr. R. C. PUNNETT's little book on this subject has been issued by Messrs. Macmillan. How valuable it is to hybridists and those concerned in the scientific study of hybridity may be illustrated by an extract from the preface:—"Why the dwarf pea sprung from tall ancestors breeds true to dwarfness; why the progeny of a black and white rabbit are in one case all black, and in another all of the wild grey colour, why the 'pure' blue Andalusian fowl must ever remain a mongrel, these and other seeming paradoxes were clear two years ago. But why two white Sweet Peas should give a purple, and why two hairless Stocks should revert to the hairy form—these were questions that were then unsolved. That experiment would give us the solution we

LAMARCK.—It is proposed to erect in the Jardin des Plantes a statue to the famous naturalist whose scientific career was mainly passed in the Natural History Museum. It is curious to see how LAMARCK, who was one of the pioneers of the doctrine of evolution, is now to be honoured, while in his lifetime and long afterwards his theories met with no acceptance.

Publications Received.—*Introduction to Plant Ecology*, by Rev. Prof. Henslow. Stanford, Lopp Acre.

TREE-FERNS IN SIKKIM.

In connection with Sir George Watt's "talk" at the Horticultural Club, we take the opportunity of reproducing a photograph, from Messrs. Johnston and Hoffmann, of 31, Devonshire Street,

WINTER WORK IN FRUIT PLANTATIONS.

II.

THE attack of birds upon Gooseberry buds this season was first noticed on December 19, the bushes having been inspected nearly every day from the beginning of that month. This early attack, however, was only upon a small piece near the farmyard, where sparrows abound. In a more distant plantation the first damage was noticed on January 17. In each case spraying was begun on the day following the discovery of the attack. In some previous seasons the damage done by birds has been so serious, and the difficulty of preventing it is so great, that I shall never plant another acre of Gooseberries, unless I can devise a more complete preventive

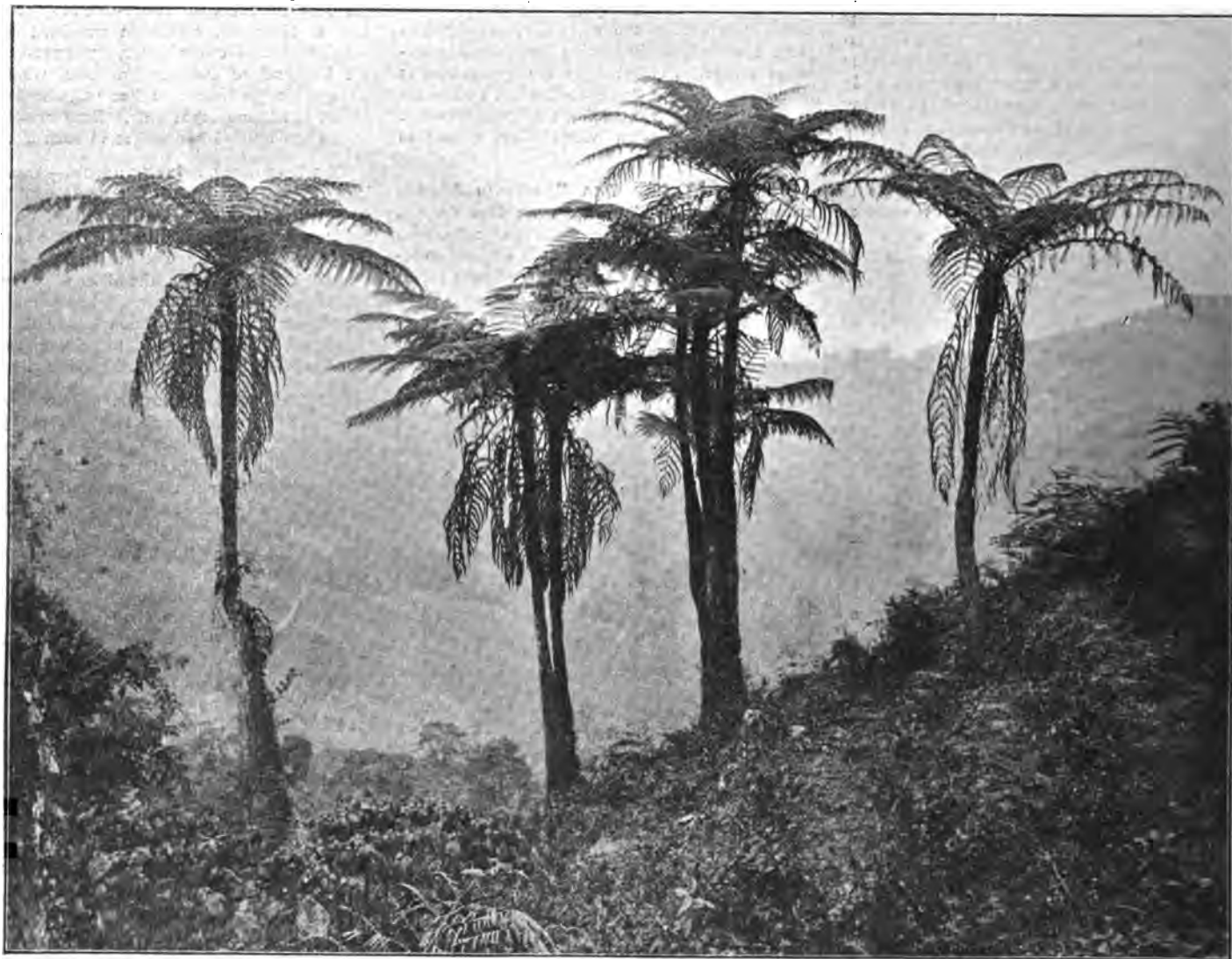


FIG. 72.—TREE-FERNS IN SIKKIM.

were confident, and our confidence has been justified by the event. The Sweet Pea and the Stock have yielded up their secret, and we are at last able to form a clear conception of the meaning of reversion. . . . As year follows year, and experiment succeeds experiment, there is forced upon us a sense of what it all may come to signify for ourselves of the tremendous powers of control that a knowledge of heredity implies. To-day we are only at the beginning. The prologue is nearing completion, the drama is yet to be written—and played." A quotation from Shakespeare is sufficiently remarkable:—

" . . . his humour

Was nothing but mutation,"

but it is not to be supposed that this can in any way be taken as an anticipation of DE VRIES!

W., showing a group of Tree-ferns near Darjeeling. As we have no specimen before us, it is not possible to say what the species or even the genus may be. In any case the plants are remarkable, not only for their picturesque appearance, but for the circumstance that the stems are branched. Species of *Cyathea* and *Alsophila*, Sir George Watt tells us, are common in Sikkim. The natives (Lepchas) utilise the soft portions of the stem of one species, *Cyathea Brunoniana* of Clarke, for food. *Alsophila glauca* is, perhaps, the handsomest and largest Indian Tree-fern, but its stem never branches. *A. ornata*, the "dangpashin" of the Lepchas, is a small species not uncommon a little below Darjeeling, and its stem is frequently branched. This, therefore, may be the species represented at fig. 72.

than is known at present. The buds are almost completely safe, so long as they are well coated with lime and sulphur, for, although birds may try a few, they do not appreciate the flavour. But the difficulty is to make the stuff stick on the buds, which are much smoother than the branches. Two or three rainy days are sufficient, at least, if the rain be heavy, to wash enough of the stuff off to render the buds palatable to birds. A small quantity of linseed oil has been tried instead of soft soap in the wash, in the hope that it would make the stuff stick on the bushes better, but it proved less effectual. Another trial was with builders' size instead of soft soap, half a pound being used in 25 gallons; and in a third paraffin, $\frac{1}{4}$ pint to a gallon of the wash was used. As no rain has fallen since these experiments were made, their

results remain to be seen. But, so far as the slight rubbing of the coated branches with the fingers may be regarded as a test, neither size nor paraffin is any improvement upon soft soap.

Small trials of two other ingredients are to be made with a syringe, as it is feared that either would clog the spraying machines. These are gas tar and Portland cement, each in a highly diluted form. There is no doubt that cement would set the lime firmly on the bushes, but the danger is that the setting would take place in the spraying machine. Probably tar also would make the lime and sulphur stick on bushes well, while it might serve by itself; but the question is as to whether a spraying machine could ever be got clean after even tar-water had been used in it.

It may be that some waterproof substance would serve the purpose of preventing rain from washing the spray-stuff off the bushes, and, possibly, a chemist or a manufacturer of waterproof materials could suggest one which would dissolve or mix well enough in water to pass easily through a spraying nozzle. The work of spraying on a large scale is so arduous and expensive that it is a serious matter to have to do it two or three times in a season to protect buds from birds. On the other hand, if no protection is afforded where wild birds are numerous, as they are in nearly all parts of this country, the damage done is incalculable. Not only is the fruit crop of the season reduced to a great extent, but the branches stripped of buds are rendered barren for all future time, and require to be cut off at their bases; while buds which would form new or extension branches are eaten off, so that the bushes are deformed and stunted. A small area of Gooseberries, $\frac{1}{2}$ acre in extent, near my farm-buildings was almost ruined two years ago by birds, and it will never be worth much hereafter.

As to the birds that do the mischief, bullfinches and sparrows are commonly regarded as the worst offenders, but chaffinches, tits, and some other birds help in the work of destruction.

Up to the time of writing the attack of birds upon the buds of Plums has not begun. The trees are inspected nearly every day; however, in order that spraying may be started as soon as the slightest damage is noticed. Moreover, choice Plums and Pears in my private orchard have been sprayed already as a precaution, though they will probably have to be treated again hereafter. It would be interesting if fruit growers generally would observe and publish the dates upon which bud-eating starts among Gooseberries, Red and White Currants, Plums and Pears, respectively.

The winter spraying of Apple and Plum trees with caustic soda and caustic potash was pursued from the first season after the planting one until the wash described in the first part of this article, without the soft soap, was substituted last winter. It was substituted for the older spray-stuff in the hope that it would check scab in Apples and leaf-blight in Plums, and possibly kill the eggs of the Apple sucker, the aphid, and various other insects. The worst attacks of scab and aphid ever experienced followed, whereas not an Apple sucker was found in a plantation that swarmed with that pest in the preceding season. Whether this immunity was due to the application of the new spray-stuff or not cannot be decided. If the stuff did not kill aphid eggs, it seems hardly likely that it destroyed the eggs of Apple suckers. The operation is now due, and probably the new Woburn winter wash will be tried for Apples, as it kills scale eggs, and therefore may be expected to prove fatal to the less protected eggs of the aphid, the Apple sucker, and other pests, besides which it should be at least a partial preventive to scab. It consists of 15lb. of copper sulphate, 5lb. of quicklime, 20lb. of caustic soda, and 50 pints of paraffin to 100 gallons of water. The directions are to slake the

lime and make it into a milk, mixing the copper sulphate previously dissolved with it, then adding the paraffin, churning the mixture thoroughly, further adding the caustic soda previously dissolved, churning again, and making up to 100 gallons with water. The only hesitation as to the use of this mixture is in regard to its extreme strength, particularly in relation to the copper sulphate and the paraffin; but Mr. Spencer Pickering states that it is quite safe. For Plums the same wash as has been used for Gooseberries will be applied.

Two operations of similar character are in progress at the time of writing. One is that of carting small chalk on to a field not yet planted, and to be used for Potatoes; and the other is that of sowing ground chalk at the rate of one ton per acre in all fruit plantations. The small or waste chalk of lime works is given away to anyone who will cart it, and 10 tons per acre can be applied at simply the cost of carting it. Even if it has to be sent a few miles by rail to a station near the user, the expense of the quantity named is small, only a small charge being made for loading into trucks, while the rail-rate is low. Ground chalk is not commonly prepared, but has been supplied to meet a special order for a large quantity. The chalk as quarried has to be dried in a kiln before being ground as finely as lime is, and it is put into bags for transport. In a report of some experiments with it in Lancashire the cost at a local station was stated to be 6s. 6d. per ton; but to me the charge is 10s., including rail carriage and the free use of the bags. Even at that price it is less than half as much per ton as ground lime costs, and, although $1\frac{1}{2}$ tons of ground chalk are needed to be equivalent to one ton of quicklime, the former is the cheaper of the two, while the work of sowing it is very much less unpleasant.

As quicklime quickly becomes converted to carbonate of lime (or chalk) on exposure to the atmosphere, its only advantage over chalk is its greater fineness when slaked.

The good old practice of chalking land at wide intervals where the soil is deficient in lime has fallen sadly into disuse. Lime is needed for all crops, and especially for all kinds of fruit. *A Working Grower.*

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

R.H.S. COMMITTEE MEETINGS ON MARCH 5.—I sincerely trust that the council of the R.H.S. will never again make the blunder of letting the hall on one of the days it is required for its proper use, and so have to ask Fellows not to show. As one of those who worked and, in however small a degree, helped to pay for the provision of this building, I object to its use for any other purpose, when it is required for the use of the society, and I have no doubt that many other Fellows hold the same opinion. *George Paul.* (See p. 157.)

SOIL STERILISATION.—Respecting the "sterilisation of soil," I practised this method I think before the word was particularly applied to the soil. I believe I was the first or amongst the earliest that practised baking or frying their potting soil. *H. Cannell, Swanley.*

ABIES MAGNIFICA VAR. XANTHOCARPA.—I was very pleased to see the figures and description of this Fir in the *Gardeners' Chronicle* for February 23, as there is still a great deal of confusion in connection with these North American Abies. *A. nobilis* and *A. magnifica* especially are very often mixed up, and yet they are quite distinct. A loosely-worded description of one would apply almost equally to the other where there is only the leaf and general habit to go by. There is also a considerable amount of variation between individual plants of the same species, even when raised from the same batch of seeds. Here we have some three to four hundred plants of *A. nobilis*, varying in size from 2 feet to 6 feet, which have all been raised from seeds obtained from one old plant. All these

young plants show a certain variation in size and shape of leaf, some being thin in texture and closely set on the stems, while in others the leaves are stouter and more openly arranged. The rate of growth also varies considerably, the majority making the usual 6 inches or so that *A. nobilis* makes annually, while some make long leaders, and have a comparatively thin habit. The latter will make sizeable trees in a shorter time than the former, though they are not such handsome specimens in a young state. The amount of glaucousness is also variable, some being highly glaucous, and others almost entirely green, while there is practically every variation between the two extremes. The Douglas Fir (*Pseudotsuga Douglasii*) is another North American Conifer that shows a considerable amount of variation, but with this Fir the differences seem to run more in certain definite types than in individual variation. The typical plant is a fast grower, making a large tree in a comparatively short time, and having a thin, open habit, which gives it a look of being overgrown and narrow in proportion to its height. Then there is a form which is sometimes met with under the varietal name of "vera," which is slower growing, of a more symmetrical habit, and has foliage of a grass-green colour. There is also a form that has occurred with us, though not in any great quantity, which resembles the type in general appearance, but has a dwarf habit, growing only about one-third as fast. It makes a very handsome, small specimen, but takes years to attain to any considerable size. As practically all the Douglas Firs grown in this country are raised from imported seed, I have often wondered whether the seeds have been collected at various altitudes. If so, it would account for these differences of growth, the strong-growing typical plant coming from the valleys, and the dwarfer forms from the hill-sides. The Colorado Douglas Fir (*P. D. var. glauca*) also varies in its habit and amount of glaucousness, and shape and size of leaf, but as this is a variety and is raised from seed, a certain amount of variation is to be expected, though I cannot remember one seedling that has reproduced the entirely green colour of the typical Douglas Fir. This Colorado form will never make a timber tree of any economical value in this country, in my opinion, as its rate of growth is slow, and it does not give one the idea of being a tree that will ever attain any great size. It is also more liable to be cut by spring frosts than the Douglas Fir, which happens, as far as I have been able to judge, through it commencing to grow earlier. As an ornamental tree, it is a very desirable plant, growing in soil that is not good enough for such Conifers as *A. concolor*, *A. nobilis*, *A. Nordmanniana*, &c. *J. Clark, Bagshot, Surrey.*

FROST AND SPRING-FLOWERING PLANTS.—Spring-flowering bedding plants in this district have suffered much from the recent severe frosts. Wallflowers which were strong and vigorous at planting time are in many cases little better than dried sticks. *Myosotis* has also been badly injured, and I am informed by older residents that these plants have not suffered so badly from frost for many years. Gardeners whose practice is to have a supply of plants in reserve, will now find the value of this system in being able to fill the vacancies in their beds, and thus make good the loss. Tulips, Crocuses, Daffodils and other bulbous plants promise well, and will doubtless compensate by their display for the disappointment caused by the failure of the other subjects. *A. B., Warrington.*

NARCISSUS "EMPRESS" NOT FLOWERING (see p. 148).—There are many causes which contribute to the non-flowering of bulbs. Abnormally late planted bulbs which are far too long in the dry state, would not be able to produce their root fibres in their proper season, with the result that an inferior bulb would result, in the spring, following upon inferior leaf growth. Consequently no flower is formed for the succeeding year. [The rudiments of the flower are formed in the spring, or not at all.] An excessively dry springtime contributes to the same thing. In the latter case established bulbs that are in a healthy condition rarely suffer. Excessive crowding of the bulbs in solid lumps and transplanting with full leafage are other causes of non-flowering. Bulbs should never be transplanted when in leaf if it can be avoided. *E. H. Jenkins, Hill.*

"MIMOSA."—I have always understood that the Mimosa of the florists' shops is *Acacia dealbata*, but the note of your correspondent F. M., page 145, suggests that more than one species arrives under that name. The name of *Acacia Decaisniana* does not occur in any works of reference that I have at command, but unfortunately they do not include the *Index Kewensis*. It may be simply a local form of *Acacia dealbata*, as that species varies considerably in the glaucousness of its foliage as well as in other features when raised in quantity from seed. As the note of your correspondent suggests that he is at least doubtful about the matter, I shall be very pleased if you can enlighten me on the subject. W. T. [We suspect some error in the name, but have no means of rectifying it. It is not in the *Index Kewensis*.—ED.]

ARAUCARIA IMBRICATA (see p. 100).—At Lota Lodge, Cork, the residence of A. F. Sharman-Crawford, Esq., one tree has sent up three finely-furnished shoots from its base, the tallest being something like 16 feet in height. I remember drawing the attention of Mr. T. Smith, of Newry, to these unusual growths, and he said it was the first case he had seen. The cause of these growths we have not been able to make out. The tree is in fairly good health, but the suckers are much more vigorous than the parent, and will in all probability supersede the old tree in time. Andrew Pearson.

LENTEN ROSES.—Mr. Archer-Hind's Lenten Roses (*Hellebores*) are now at their best, and are very beautiful, yet the flowers are found but in few gardens. Mr. Archer-Hind has been hybridising these plants for many years, and has succeeded in greatly improving the race, some of his seedlings being far in advance of the named Continental varieties. His first crosses were accidental, but some were so pretty that he was led to cross them by hand. He found that colour was introduced by the male pollen and shape by the female, and, by degrees, he improved the flowers wonderfully in size, shape, and colour, conquering the faults little by little. Not only was pollen taken from the best plants, but from the best flower upon the plant, natural defects being by this means eliminated. Now both star-shaped and cup-shaped flowers are produced, and colours ranging from the purest white, without any suspicion of green in the petals, to deepest maroon-red. Some of the whites and pale pinks are beautifully spotted in the interior with crimson-purple. Seedlings take three years to flower. Seed is sown as soon as ripe in fine soil or a damp border, and seedlings begin to show from December to February, the seedlings being transplanted in their second year. They do equally well in a sunny or shaded border if not too dry, and have a very pretty effect when planted out in numbers in open woods or along the base of lane-banks. If the flowers are used for the house, the stems must be split up to a length of about 3 inches, or they will droop at once, whereas if this precaution is taken they will last well for a week. Mice are very destructive in Mr. Archer-Hind's garden, and he informed me that he had lost over 100 buds of these *Hellebores* in one night through them. S. W. Fitzherbert.

CATS IN GARDENS.—I am happy to believe that few people will agree with your correspondent, Mr. A. J. Hartless (see p. 146), in his sweeping condemnation of cats. Surely at this season of the year in particular, when little demons in feather delight to demolish the fruit buds, it is the cat who is the gardener's friend and the birds' enemy. Likely enough the felines of Highgate distress the Waterlow Park gardeners by unauthorised attempts at gardening, but, even so, a cat is far too delightful an asset of city life to be thus thoughtlessly disparaged. Jason.

TRADE MEMORANDUM.

POSTAGE TO THE CONTINENT.—One of the leading German seedsmen writes us as follows:—"We experience a considerable loss every season through a great number of our British friends not bearing in mind that the postage to the Continent is 2d. for every half-ounce. A little attention to this matter would save a good deal of annoyance and the unnecessary enrichment of the post-office at our expense." We willingly give publication to what seems to be a very justifiable complaint, owing to the thoughtlessness of correspondents.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 5.—When the Council entered into an agreement with the SOUTH AFRICAN PRODUCTS EXHIBITION, it was stipulated that the Hall should be cleared on Monday, March 4, in order that the R.H.S. exhibition might be held as usual on Tuesday, and the South African exhibits were to be replaced afterwards. The South African Products Exhibition Committee subsequently found themselves unable to keep the agreement entered into, and, in consequence, a note from the R.H.S. secretary was printed in our last issue, stating that ordinary exhibits were not solicited on Tuesday, owing to lack of space. These circumstances were explained by Mr. W. Marshall (chairman) and by Mr. J. Hudson at the meeting of the Floral Committee, when the action of the Council came up for discussion. It was hoped, and thought, generally, that such circumstances would not be likely to occur again.

Nevertheless, room was found for more horticultural exhibits than in the circumstances were expected, and, in addition to a number of smaller groups of Orchids, a magnificent group of *Dendrobiums*, &c., from JEREMIAH COLMAN, Esq., found a place.

The ORCHID COMMITTEE recommended four First-Class Certificates and six Awards of Merit to novelties.

The FLORAL COMMITTEE recommended one First-Class Certificate and six Awards of Merit, and the Council made one Award of Merit to an exhibit that arrived late.

The FRUIT AND VEGETABLE COMMITTEE made no award to any novelty, but recommended a Silver Banksian Medal to J. T. CHARLESWORTH, Esq., Nutfield Court, Surrey (gr. Mr. T. W. Herbert), who showed two dozen dishes of Apples and Pears.

In the afternoon the Rev. Geo. Henslow delivered a lecture on "The True Darwinism."

Floral Committee.

Present: W. Marshall, Esq., chairman; and Messrs. George Paul, C. T. Drury, Geo. Nicholson, Jas. Walker, Jno. Green, T. W. Turner, Jas. Douglas, C. R. Fielder, R. W. Wallace, Jas. Hudson, Walter T. Ware, W. Howe, C. Blick, W. Bain, Chas. Dixon, H. J. Cutbush, Arthur Turner, W. Cuthbertson, W. P. Thomson, Chas. E. Pearson, R. C. Notcutt, J. W. Barr, Ed. Mawley, W. J. James, E. T. Cook, and R. Hooper Pearson.

Messrs. JAMES VEITCH & SONS, Ltd., King's Road, Chelsea, showed a number of charming little plants of *Azalea Hexe* X, in small 60-size pots, and intermingled with the yellow *Primula Kewensis* X—a most pleasing combination. At the back was a row of the large-flowered *Jasminum primulinum*, and at one end a batch of the sweet-scented *Boronia megastigma aurea*. We also noticed *Clianthus puniceus* and its white variety.

Mr. H. B. MAY displayed a small batch of seasonable greenhouse flowering plants, prominent among which were sprays of the scented-leaved *Pelargonium Clorinda*, some well-flowered *Clematis*, *Boronia megastigma*, and many beautiful Ferns.

Messrs. H. CANNELL & SONS, Swanley, Kent, staged some exceptionally fine plants of the large-flowering or giant type of *Star Primulas*, with flowers of remarkable size and colouring. They were arranged in rows of named varieties, and the colours included red, white, magenta, light blue or heliotrope, and ruby. One of the choicest was W. Raphael, a beautiful shade of red. Attraction (mauve) and Mrs. H. Crooks (white) are also worthy of mention. Messrs. CANNELL also displayed some very large trusses of flowers of *Pelargonium Clorinda*.

Rt. Hon. Lord ZOUCHÉ, Pulborough, Sussex (gr. Mr. Spellard), exhibited a dozen very large plants of the florist's *Cyclamen*, some being in 12-inch pots. They were very freely flowered, compact in habit, and showed general good culture. (Silver Banksian Medal.)

Mr. TAVERY, Loudwater Gardens, Rickmansworth, staged a batch of *Primula obconica*, of an improved strain, the flowers being very large and generally of the best form.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, London, N., put up a small group of *Jasminum primulinum* and Carnations.

The beautiful deep-scarlet *Rose Richmond* was shown well by Mr. W. E. WALLACE, Eaton Bray Nurseries, Dunstable. This American variety is of exquisite form and is developed on very long stems, which are a valuable feature when the cut flowers are used for vases, &c.

Messrs. C. BROOKS & CO., Worting, Basingstoke, had inflorescences of the *Stellata* or *Star Primula* in many pretty shades of colours; one of a salmon-pink tint, named "Orange King," attracted considerable attention.

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, again displayed bowls of bulbous plants, grown in moss fibre, without drainage material. Lily of the Valley was doing exceedingly well under this system of culture.

Bulbous Irises were displayed by several hardy-plant growers. A very fine exhibit of these seasonable flowers was staged by Mr. F. HERBERT CHAPMAN, Guldeford Lodge, Rye. The collection was principally of varieties of *I. reticulata*. Other species were shown, including *I. Danfordiae*, *I. Krelagei*, &c.

Messrs. R. WALLACE & CO., Kilnfield Nurseries, Colchester, also showed species of bulbous Irises, as well as other pretty Alpine plants, such as *Narcissus monophyllus*, *Cyclamen ibericum lilacinum*, *Crocus Tommasinianus*, &c.

Messrs. BARR & SONS, King Street, Covent Garden, London, had many hardy spring flowers and an assortment of *Daffodils* of most types. We noticed the pretty *Tecophilaea cyanocrocus*, with its beautiful, blue petals tipped with gentian-blue.

Hardy flowers were also shown by Mr. G. REUTHE, Keston, Kent, and by the Misses HOPKINS, Barming, near Maidstone, Kent.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cyrtomium falcatum Rochfordii.—The type is a well-known, brightly-coloured Fern that is capable of withstanding considerable ill-usage, owing to the substance of the fronds and pinnae. The variety now shown has much divided margins to the pinnae, which are moderately tessellated. Shown by Messrs. T. ROCHFORD & SONS.

AWARDS OF MERIT.

Iris "Aspasia."—This appears to be a variety of *I. reticulata*, obtained from crossing the type with one of its own varieties. In colour, the flowers are dark purple, the lamina of the falls having an orange-coloured stripe with a little whitish mottling on either side of the stripe.

I. "Melusine."—Of the same type as the preceding variety. Colour, light porcelain-blue, with orange-coloured stripe and white mottling on the lamina as in the other variety. Both varieties were shown by Mr. F. HERBERT CHAPMAN, Guldeford Lodge, Rye.

Freesia Chapmani.—This is a yellow-coloured *Freesia* with orange shades on the lower segments of the flower. It is rather more fragrant than *F. aurea*, but otherwise much resembles that plant. Shown by Mr. F. HERBERT CHAPMAN.

Lachenalia May Crosbie.—Several varieties of *Lachenalia* were received as cut flowers from Mr. F. W. MOORE, Glasnevin Botanic Gardens, Dublin, after the Floral Committee had risen. The council, in the circumstances, made an Award of Merit to the variety named above, which is a self-coloured yellow flower. Mr. MOORE has raised many excellent varieties of this plant, and "May Crosbie" did not appear to us superior to similarly-coloured varieties exhibited on previous occasions.

Primula stellata.—Messrs. H. CANNELL & SONS, Swanley, were awarded an Award of Merit for a strain of this type of the Chinese *Primula* (*P. sinensis*). The varieties shown had evidently been obtained from re-crossing the *stellata* type with the florists' varieties, and this has had the result of imparting increased substance and size to the flowers without destroying the free character of the inflorescence found in the ordinary type of "*stellata*." The varieties which composed the strain included Mrs. H. Crooks, and White Clipper (white), Attraction (mauve), W. Raphael (red), and Masterpiece (lavender).

Rhododendron (Azalea) amenum "Hexe."—This is a seedling variety of this well-known Indian *Azalea*, which has small, purple-coloured

flowers. "Here" has larger flowers, and their colour is bright red. It is not wholly descended from *R. amœnum*, as this was crossed with another variety of *R. indicum*. The small plants exhibited by Messrs. JAS. VEITCH & SONS were very freely flowered.

Rose Richmond.—Cut blooms of this brightly-coloured crimson Rose were shown by Mr. W. E. WALLACE, Eaton Bray Nurseries, Dunstable. It is of American origin, and we have noticed specimens at the exhibition in winter for several seasons past. The flowers are favourites at the present time in Covent Garden Market. Those who appreciate the variety "Liberty" will like this one also. Its good qualities include an excellent and strong stalk, beautiful form as seen in bud, vivid colouring, and thick, smooth leaves that are likely to resist diseases.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, Jeremiah Colman, W. Bolton, R. G. Thwaites, G. F. Moore, W. A. Bilney, J. Wilson Potter, Frederick J. Hanbury, W. Cobb, H. Little, W. Boxall, A. A. McBean, Arthur Dye, H. G. Alexander, W. H. White, H. A. Tracy, T. W. Bond, and H. Ballantine.

Notwithstanding the announcement that the hall would be occupied by the South African Exhibition, the Orchids were not to be denied, and room was made for a goodly quantity of them.

JEREMIAH COLMAN, Esq., Gatton Park (gr. Mr. W. P. Bound), took the lead with a grand group facing the entrance, and which was largely composed of the fine *Dendrobiums* and other hybrids raised at Gatton Park. The group, which was artistically arranged, had for a centre, high up at the back, a fine lot of *Calanthes*, sending their arching sprays all around. At intervals, sections of *Dendrobiums* were elevated above the body of the group, and at each end were slender plants of *Epidendrum Boundii* bearing a profusion of orange and scarlet heads of bloom. At one end were the Gatton hybrids of *Spathoglottis*, one of which secured an Award of Merit. Among the varieties of *Dendrobium nobile* were fifteen distinct named sorts, the most attractive of which, and the most delicately-tinted, appeared to be *D. nobile Colmanianum*, a clear white flower, with light violet centre. Among the hybrids were a great variety of fine varieties of the *D. rubens*, and *D. splendidissimum grandiflorum* sections, as well as new kinds flowering for the first time. The rare yellow species *D. signatum* was represented by a specimen with four flowering growths, and near it were some of the yellow *Dendrobiums* derived from *D. signatum*. Other specially noteworthy subjects were a good selection of *Cattleya Trianae*, *Cymbidium grandiflorum*, with fine spikes; the new *Cœlogyne Colmanii*, recently illustrated in the *Gardeners' Chronicle*; a good selection of *Cypripediums*, *Odontoglossums*, &c.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, staged a small but select group, in which the principal plants were *Odontoglossum Elaine*, var. *Golden Gem*, an elegant flower with lemon-yellow ground colour evenly spotted with chocolate-purple; *O. Ossulstonii*, of perfect shape and fine marking; a very distinct, garden-raised *O. Adrianæ*, with a branched spike of very pretty, darkly-blotched flowers; an excellent-spotted *Odontoglossum crispum*, and a few examples of the white type; and, among other hybrids, the new *Lælio-Cattleya Sheila* (*Cattleya Percivaliana alba* × *Lælia præstans alba*), a nice, pure white flower with orange disc to the lip. (Silver Banksian Medal.)

Canon The Hon. K. F. GIBBS, Aldenham Vicarage, Watford (gr. Mr. Lazzall), was awarded a Silver Flora Medal for six specimens of *Cœlogyne cristata*. The plants were fine examples of good cultivation, and Mr. Lazzall was voted a Cultural Commendation.

Major G. L. HOLFORD, C.I.E., C.V.O., Westnort, Tetbury (gr. Mr. H. G. Alexander), sent a very interesting selection of fine varieties for several of the best of which see Awards. Among them were *Cymbidium insignis*, Westnort variety, with two fine spikes, the one of fourteen, and the other of five flowers; a splendid specimen of the yellow *Dendrobium Ophir*; *D. melanodiscus* "Radiance," of good shape

and colour; *Sophro-Lælia Psyche*, with eighteen bright, reddish, scarlet flowers. (Cultural Commendation.)

J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. Whitelegge), showed the noble *Cattleya Trianae* The Premier, which had previously secured the First Diploma, and now gained a First-Class Certificate.

Messrs. JAS. CYPHER & SON, Cheltenham, arranged a very effective group of rare and showy Orchids, in the centre being *Odontoglossum loochristense* "Empress Frederick," a splendid flower, with large and broad segments of a clear yellow, heavily blotched with red-brown, the white ground colour showing through at the bases of the petals and on the lip. Mr. Cypher's speciality of *Dendrobiums* were well represented and in their usual vigorous condition. (Silver Banksian Medal.)

Messrs. HUGH LOW & Co., Enfield, staged a group in which were several excellent forms of their famous strain of *Cattleya Trianae*, good *C. Percivaliana*, with one of the new *C. Percivaliana Little Gem*, the immature flower of which was nearly white with a yellow disc. (Silver Banksian Medal.)

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, staged a good selection of hybrid *Cypripediums*, including *C. Maudiae* with three flowers; *C. Harrisianum albens*, *C. Fascinator magnificum*, *C. aureum Hyeumum*, *C. Lord Derby*, &c.; a white petalled form of *Dendrobium superbum*, *D. nobile virginale*, and *Cymbidium Woodhamsianum* (*Lowianum* × *eburneo-Lowio-eburneo*), like an enlarged very yellow-tinted *C. Lowianum*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent a fine plant of *Cypripedium* "Monsieur de Curte" Westfield variety, with fine flat dorsal sepal blotched with nearly black spots, the broad white margin having a ray of small purple spots. The petals and lip are honey-yellow, tinged with red-brown. It has the dorsal sepal much better developed than in other forms, and resembling, in many respects, a good *C. Euryades*.

GURNEY WILSON, Esq., Glenthorne, Haywards Heath (gr. Mr. Hill), showed *Odontoglossum crispum rotundum*, with one newly-opened flower which disclosed a remarkably beautifully blotched form, with circular shape and almost equal broadly ovate sepals and petals. The latent purple colour in the segments so prized by collectors of this favourite class was well indicated and gave promise of yet greater beauty when matured. It was of Mr. John Carder's collection.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford, sent a fine form of *Cymbidium insignis* (see Awards) and a species imported with it, resembling *C. Wilsoni*, but said to be *C. Schröderianum*.

F. W. MOORE, Esq., Curator, Royal Botanic Gardens, Glasnevin, Dublin, sent two magnificent spikes of *Cymbidium grandiflorum*, Glasnevin variety, which had previously secured a First-Class Certificate.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cymbidium insignis, *Glebelands variety*, from J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis). A magnificent form, with flowers much larger and broader in all their parts than other forms. Flowers silver white, with a slight blush shade and rose-purple spotting on the lip and bases of the petals.

Lycaste Ballia, *South Lodge variety*, from F. DUCANE GODMAN, Esq., South Lodge, Horsham. A very richly-coloured form with rose-red sepals and petals and ruby-crimson lip. The finely-grown plant had several large blooms.

Odontoglossum crispum Mossia, from J. S. MOSS, Esq., Wintershall Hall, Bishop's Waltham (gr. Mr. Kench). A very handsome variety, very distinct from others previously shown. The large, broad-petalled flowers have all the segments fringed, and of a silver white slightly shaded with rose, and blotched over the greater part with evenly distributed reddish-purple blotches.

Cattleya Trianae The Premier, from J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. Whitelegge). In size, shape and effective colouring, one of the best yet seen, and a model flower. The whole flower is perfectly filled in,

all the segments overlapping, and the crimped petals as broad as long. Sepals and petals silver-white, delicately tinged with rose-pink. Lip disc orange, with a broad crimson-purple blotch in front. The Grange collection is famous for fine forms of *C. Trianae*, and this, which has previously taken First Diploma, is considered by Mr. BRADSHAW the best of its class.

AWARD OF MERIT.

Brasso-Cattleya H. G. Alexander (*Cattleya citrina* × *Brassavola Digbyana*), from Major G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander). A remarkable hybrid between very diverse parents. The habit of the plant is erect, the broad pseudo-bulbs compressed, and two-edged, and the dark-green leaves fleshy. The flower, which displays a tendency to be pendent, is on a long, twisted ovary, the fleshy sepals and thinner petals projected forward and pale-yellowish green in colour. The lip, which is fringed on the whole margin, is green at the base, changing to primrose-yellow in front.

Odontoglossum mirum Lady Howick (*Wilckeanum* × *crispum Calypso*), from Major G. L. HOLFORD. A very pretty hybrid, resembling a good blotched *O. crispum*, and with *labelium* more like *O. Pescatorei*, but larger. Sepals and petals French-white, with large chocolate-purple blotches.

Cypripedium villi-exul (*villosum* × *exul*), from Major G. L. HOLFORD. A great improvement on *C. exul*, which it closely resembles in colour, the flowers being larger.

Spathoglottis Colmanii aureum, from JEREMIAH COLMAN, Esq., Gatton Park (gr. Mr. W. P. Bound). Flowers large, bright yellow, with a small ruby-red mark on the lip.

Cypripedium Dickinsonianum (*villosum aurum* × *Euryades*), from FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins). A very brightly-coloured flower, the dorsal sepal being of a rosy-crimson deepening to ruby-crimson at the base, and with a broad snow-white band on the upper part. Petals and lip honey-yellow, tinged with mahogany-red, the whole surface being glossy.

Cypripedium Mrs. Francis Wellesley (*Sanderianum* × *Gowerianum*), from FRANCIS WELLESLEY, Esq., Westfield, Woking. A fine hybrid, beautiful in leaf and flower, the latter partaking of the dark tropical beauty of *C. Sanderianum*, with the form and rosy tints of the other parent blended. The fine dorsal sepal has a greenish base, the upper part tinged with rose, and the whole bearing closely-arranged irregular lines of dark chocolate colour. The extended petals are similar in colour and bearing blackish-warted spots, the marginal ones ciliate. Lip large, reddish-rose on the face.

THE EXHIBITION OF SOUTH AFRICAN PRODUCTS,

which continues on view until to-morrow week (18th inst.), is naturally of relatively little importance horticulturally, and, apart from the minerals, with which South Africa is so largely interested, the exhibits are chiefly concerned with agriculture. Thus on all sides are seen picked samples of cereals, tobacco, cotton, tea, coffee, timber, wool, preserves, jams, jellies, bottled fruits, &c.; wines, spirits, brandy, lemons, oranges, citrons, medicinal herbs, tanning barks, fibres, pineapples, rubber, gums, honey, fodder, oil-producing seeds, and a host of other things from Cape Colony, Natal, the Transvaal, Rhodesia, and the Orange River Colony. The few fresh fruits that are on view are principally Apples, Pears, Plums, and Pineapples; the last-named fruits are very small, from Natal, but of agreeable flavour. Samples of tea appear on several stands, and the growth of this important industry nearer home may have a marked effect on the price of this important commodity. In the matter of wines, South Africa appears able, judged by the extensive samples displayed, to supply the home market with almost all the brands required, including brandies, liqueurs, and other spirits. The oldest wine growers and distillers in these colonies are Messrs. J. Sedgwick & Co., whose business was founded at Cape Town as far back as 1859 by Captain James Sedgwick, formerly in the Honble. East India Company's service, and grew steadily until, having outgrown their accommodation, the firm in 1887

added to their already commodious buildings magnificent stores, where are housed in various stages of maturation about 750,000 gallons of wines and other liquors. Bats' guano, vulture-excrement, and ant-hill soil appear strange fertilisers to us who rely on nitrate of soda, guano, &c., but no doubt they are equally rich in manurial properties. The ancient native hoe appears a clumsy tool, but it was in use before the advent of the white man to these lands. It was made from smelted iron-stone by the native blacksmith, but is now largely superseded by our modern tool. The native blanket, made from the inner bark of some tree, does not appear so inviting as our woollen equivalent, nor does the native pillow, which is merely a wooden settle on two short legs, and hollowed at the top for the neck, appear to be capable of affording comfort. We should not care to exchange our chop or steak for a strip of the mummified springbok, nor does dried locust appeal to us as being especially inviting, although we were informed that this is one of the native's greatest delicacies. The native tobacco appeared to be more suitable for building purposes than for vaporising, and a new use was discovered for Agave leaves when we were told that they form the principal ingredient of native snuff. What appeared to be tubers of *Stachys tuberifera*, on closer examination were found to be "plugs" of raw rubber, that unwound like gigantic spider webs. This important vegetable product was also seen in balls, known as "nigger heads," which, by some mysterious means, often conceal a heavy stone. As rubber is bought from the natives by weight, a cautious dealer will always cut open the "nigger head" to see that he is not purchasing road-mending material. Raw rubber is also exhibited in many other forms. The new Calabash pipes were displayed by more than one firm, and these must be a profitable industry, judging by the prices asked for specimens at the show. An interesting little exhibit was of pieces of granite, with tiny yellow and red lichens. These were collected near the late Cecil Rhodes' grave on the Matoppo Hills, of which some very fine photographs were on view. The show is brimful of interest, and is especially valuable to the intending settler, and now that tranquillity prevails in these colonies, we may look to an era of prosperity which needs but the hand of the labourer to develop and reap the riches with which these lands are naturally endowed.

Messrs. SUTTON & SONS, Reading, display an assortment of flower and vegetable seeds suitable for cultivation in South Africa, and an ornamental kiosk filled with wax models of similar vegetables.

HORTICULTURAL CLUB.

"HIMALAYAN SCENERY AND VEGETATION."

MARCH 5.—The usual monthly dinner of this club was held on the above date at the Hotel Windsor, Mr. Harry J. Veitch occupying the chair and a good number of members and friends attended to hear the promised lecture on the above subject by Sir George Watt, K.C.S.I. Sir George illustrated his subject by a large number of lantern slides prepared from photographs taken by himself in the course of his travels. The introductory slide was a map of India, showing how the great range of the Himalayas formed an immense wall to the north of the huge peninsula, which wall at both ends radiated out into a fan-like extension of ranges, the whole constituting a practically insurmountable defensive barrier and exercised in addition a remarkable effect upon the climatal conditions of the whole of the southern area of India by deflecting the trade winds, creating the beneficial monsoons and in this way redeeming the whole country from the desert conditions which would otherwise prevail. Curiously, too, the whole of the great river system rising from the large area of perpetual snow pervading the higher regions of these mountains, even that part which originates on the northern flanks, finds its way southwards and permeates the land in all directions to the greater amelioration of climatal conditions. The vast accumulation of snow and ice which in some of the views, with tropical vegetation in the foreground, could be seen like a long line of ragged white cloud in the dim distance far above the horizon, distributes its cooling influence far and wide and constitutes an inex-

haustible source of supply to the great rivers to which it gives birth, their season of flood occurring in the hottest season of the year owing to increased melting of the snows. In this connection Sir George Watt mentioned that amid these snows and ice, hundreds of feet thick, it was only practicable to travel in the early morning or in the evening, the intense heat of the sun's rays at midday, perhaps 140° Fahr. or more, being unbearable, a heat, moreover, which had the curious result, that any water resulting from consequent melting of ice or snow was instantly evaporated, and hence there was no sign at all of thawing. The grandeur of the scenery amid the loftiest peaks was indescribable as it was also in the mighty gorges cut by the rivers which traversed the range on their way southwards. Huge perpendicular cliffs, thousands of feet in height, largely consisting of white limestone, soared on either side of a narrow channel through which the fierce flood tore its impetuous way to the freedom of the lower-lying plains. In some places there was practicable a rude and primitive navigation by means of inflated bullocks' skins of very comical appearance. A number of slides afforded delightful glimpses of tropical conditions and also the modified ones prevailing in Sikkim, Simla, and Kashmir, giving a vivid idea of the difference induced in climate under the tropics, by varied elevation and environment, some parts of the country having a climate like our own, others being truly tropical, while at the other end of the scale we find truly Arctic conditions, such as mighty glaciers, avalanches, and so on. Naturally Sir George Watt's descriptions included the vegetation, some of the apparent pasture land consisting of dense masses of Alpine flowers and many of the hill flanks appearing solid with Rhododendrons of many species and all the hues of the rainbow. At one spot high up the mountains, where the only vegetation were the lichens encrusting the rocks, it was possible to look down and see, as it were, the different climatal layers of vegetation, Arctic, temperate, subtropical and tropical, culminating in the Bananas, Palm trees, &c., of the warmest regions, the whole embraced in one comprehensive view.

The Vale of Kashmir would appear to be a terrestrial paradise, and is peculiarly interesting as regards its floating gardens, sometimes an acre or more in extent, which are constructed on the Kashmir Lake, of boughs and other material woven together, and covered with soil, and yielding fine crops of various kinds. In all some 100 or more slides were shown and rapidly and graphically described, to the great pleasure of the members.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 7.—*Committee present:* E. Ashworth, Esq., chairman; and Messrs. Thorp, Warburton, H. H. Smith, P. Smith, Rogers, Sander, Ward, Keeling, Cypher, Ashton, R. Ashworth, Thompson, Parker, Upjohn, P. Weathers (Hon. Sec.)

There was a capital exhibition, several choice groups being shown.

A. WARBURTON, Esq., Haslingden, staged a pleasing group of *Odontoglossums*, &c., and was awarded a Silver Medal.

W. THOMPSON, Esq., Stone, also received a Silver Medal for a group.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, Kent, made their first appearance at Manchester as exhibitors, having a splendid set of *Cypripediums*, for which they were granted a Silver Medal.

Messrs. CYPHER & SONS, Cheltenham, staged a showy group of Orchids, for which a Silver Medal was awarded.

Messrs. SHACKLETON, Bradford, and J. W. MOORE, Ltd., of Leeds, obtained Bronze Medals for groups.

A Cultural Certificate was awarded to O. O. WRIGLEY, Esq., for a collection of *Lycastes* (gr. Mr. Rogers).

Votes of thanks were awarded to Messrs. CHARLESWORTH, J. E. SADLER, KEELING & SONS, and E. ROGERSON, Esq., for contributions to the meeting.

AWARDS.

A First-Class Certificate was granted to *Cypripedium insigne* var. *McNabiana*. First-Class

Certificate and Awards of Merit to *Cypripedium* × *Diadem* var. "Grand Model," shown by Dr. HODGKINSON. C. × *nitens* var. *Queen of the Yellows*, C. *Dowlerii* var. *Virginianus* "Orchid-hurst var.," C. × *Titian*, C. × *Juno Drewett's* var., these five from Messrs. ARMSTRONG & BROWN. C. × *Lathamianum* var. *Thompsoni*, and C. × *Rupert*, shown by Mr. W. THOMPSON. C. × *Dowlerii* var. *punctatum*, from Messrs. CYPHER & SONS; and *Cattleya* × *Enid* var. *superba*, shown by Messrs. CHARLESWORTH & Co.

FEBRUARY 21.—A meeting was also held on this date, when Silver Medals were awarded to Messrs. A. WARBURTON, Messrs. CYPHER & SONS, and H. J. BROMILOW, and Bronze Medals to Messrs. KEELING & SONS, and Mr. J. E. SADLER for groups of plants.

A First-Class Certificate was given to A. WARBURTON, Esq., for *Odontoglossum* × *Lambeauium* Warburton's var., and Awards of Merit to *Cypripedium* × *Picus* (parentage unknown), and *Odontoglossum* × *Lambeauium* Ashworth's var., both shown by R. ASHWORTH, Esq.; *Lycaste Skinnerii* var. "King of Spain," exhibited by J. ROBSON, Esq.; *Dendrobium* × *Wiganianum*, var. "Snowflake," shown by G. W. JESSOP, Esq.; *Odontoglossum crispum* var. "Samuel Gratrix," *Cypripedium* × *Archimedes* var. "Prince Eddie," the two last-named shown by S. GRATRICK, Esq.; and *Cattleya Trianae* var. "Edgar Knight," exhibited by Messrs. STANLEY & Co. P. W.

LEEDS PROFESSIONAL GARDENERS.

FEBRUARY 13.—The annual dinner of the Professional Gardeners' Lodge, a society which was instituted as the Professional Gardeners' Friendly Benefit Society in 1867, but which is now affiliated as a neutral lodge of the Grand United Order of Oddfellows, took place at the Green Dragon Hotel, Leeds, on the above date. There was a large attendance of the members. On January 1, 1867, the Professional Gardeners' met and paid their first contributions, the records showing that 77 members paid on that night. By 1871 this number was increased to 120, and from that time to the present the number has fluctuated between 115 and 145. Of the 77 original members, all but 12 have passed away. During the 40 years upwards of £2,200 has been paid out to the members during sickness, and upwards of £900 in funeral allowances, in addition to which £1,424 has been saved and invested at interest to meet future contingencies, the interest from which is now a very valuable asset. Honorary members, during 40 years have contributed upwards of £600 to the funds. The total income for the year has been £176 2s. 9d. and the total expenditure £100 7s. 4d., which leaves a credit balance of £76 15s. 5d.

Obituary.

DEATH OF A FAMOUS ORCHIDIST.—Sir Frederick Wigan, Bart., died suddenly on March 2 whilst going to record his vote in the election for the London County Council. Sir Frederick's collection of Orchids at Clare Lawn, East Sheen, is a remarkable one, and the *Phalænopsis* are equal, if not superior, to any in the British Isles. They were formerly under the charge of Mr. Want, now head gardener at Clare Lawn, and for the past seventeen years have been cultivated by Mr. W. H. Young, who has written our "Orchid Houses" Calendar in several previous years. Deceased was a liberal and kind employer. He supported the Royal Horticultural Society always, and was a vice-president at the time of his death. His son, Mr. A. L. Wigan, is a member of the present council. The baronetcy will devolve upon the eldest son, Mr. F. W. Wigan.

JOHN MCHATTIE.—We regret to hear of the death of John McHattie, aged 18 years, the only child of Mr. J. W. McHattie, Superintendent of the Parks and Open Spaces in the City of Edinburgh. Deceased was learning the nursery and seed business under the firm of Messrs. Thomas Methven and Sons, Edinburgh.

MARKETS.

COVENT GARDEN, March 6.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—ED.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Azalea Fielderi, per dozen bunches	2 6-40	Marguerites, yellow, doz. bchs.	2 6-30
— mollis, p. bch.	1 0-16	Mignonette, per doz. bunches	2 0-30
Anemones, per doz. bunches	3 0-40	Narcissus, paper white, per doz. bunches	1 0-20
Bouvardia, per doz. bunches	4 0-60	— gloriosus	2 0-30
Calla Ethiopica, p. dozen	2 6-36	— poeticus, per dozen bunches	4 0-60
Camellias, white, per dozen	2 0-30	— Soleil d'Or, per dozen bunches	1 6-20
Carnations, per dozen blooms	2 6-50	Odontoglossum crispum, per dozen blooms	2 6-30
— smaller, per doz. bunches	12 0-18 0	Pancratium, doz. fls.	3 0-40
Cattleyas, per doz. blooms	12 0-15 0	Pelargonium, show, doz. bchs.	6 0-90
Christmas Roses, doz. blooms	0 9-10	— Zonal, double scarlet	5 0-80
Daffodils, doz. bchs.	3 0-60	Poinsettias, per doz. white, doz. bchs.	6 0-90
Dendrobiums, per doz. blooms	2 0-30	Ranunculus, per dozen bunches	6 0-90
Eucharis grandiflora, per doz. blooms	2 0-30	Roses, 12 blooms	8 0-50
Euphorbia jacquiniiflora, per bunch	0 9-10	— Niphetos	8 0-50
Gardenias, per doz. blooms	6 0-80	— Bridesmaid	4 0-60
Heather, white, pr. doz. bunches	3 0-60	— General Jacqueminot	4 0-60
Hyacinth (Roman), p. doz. bunches	3 0-50	— Kaiserin A. Victoria	4 0-80
Lilac, white, p. bch.	3 6-40	— C. Mermet	8 0-60
Lilium auratum	8 0-40	— Liberty	6 0-80
— lancifolium, rubrum and album	8 0-40	— Mad. Chateau	4 0-80
— longifolium	8 6-50	— Mrs. J. Laing	6 0-80
Lily of the Valley, p. doz. bunches	6 0-90	Snowdrops, per doz. bunches	1 0-20
— extra quality	12 0-18 0	Stephanotis, per dozen trusses	4 0-60
Marguerites, white, p. doz. bunches	3 0-40	Tuberose, per doz. blooms	0 4-06
		Tulips, doz. bchs.	5 0-80
		— Special varieties	12 0-18 0
		Violets, doz. bchs.	2 0-40
		— Parma, p. bch.	2 0-40

Cut Foliage, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Adiantum cuneatum, per dozen bunches	4 0-60	Galax leaves, per dozen bunches	2 0-26
Asparagus plumosus, long trails, per doz. bunch	6 0-90	Hardy foliage (various), per dozen bunches	3 0-90
— medium	1 6-20	Ivy-leaves, bronze	1 6-20
— Sprengeri	0 6-10	— long trails per bunch	1 6-30
Berberis, per doz. bunches	2 6-80	— short green, doz. bunches	2 0-30
Croton leaves, bch.	1 0-16	Moss, per gross	4 0-50
Cycas leaves, each	1 6-20	Myrtle (English), small-leaved, doz. bunches	4 0-60
Fern, English, per dozen bunches	2 0-30	— French, dozen bunches	1 0-16
— French, dozen bunches	2 0-40	Smilax, p. doz. trails	2 0-30

Plants in Pots, &c.: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Acacias, per dozen	18 0-30 0	Erica melanthera, per dozen	9 0-18 0
Ampelopsis Veitchii, per dozen	6 0-80	— Wilmoreana, p. dozen	12 0-18 0
Aralia Sieboldi, per dozen	4 0-60	— persoluta alba	20 0-30 0
— larger	9 0-12 0	Eunymus, per doz.	4 0-90
Araucaria excelsa, per dozen	12 0-30 0	Ferns, in thumbs, per 100	7 0-10 0
Aspidistra, green, per dozen	18 0-30 0	— in small and large 60's	16 0-25 0
— variegated, doz.	30 0-42 0	— in 48's, per doz.	4 0-10 0
Asparagus plumosus nanus, doz.	9 0-12 0	— in 36's, per doz.	10 0-18 0
— Sprengeri, doz.	9 0-12 0	Ficus elastica, doz.	9 0-12 0
— tenuissimus, per dozen	9 0-12 0	— repens, per doz.	4 0-60
Azalea (Indica vars.), per doz.	24 0-36 0	Genistas, per doz.	8 0-10 0
— mollis, each	8 0-10 6	Hyacinths, per doz.	9 0-12 0
Begonia Gloire de Lorraine, p. doz.	12 0-18 0	Kentia Belmoreana, per dozen	12 0-18 0
— Turnford Hall, per dozen	12 0-18 0	— Fosteriana, per dozen	12 0-21 0
Boronia megastigma, per doz.	12 0-30 0	Lantana borbonica, per dozen	12 0-18 0
Calas, per doz.	9 0-12 0	Lilacs, each	4 0-10 0
Cinerarias, per doz.	6 0-10 0	Lilium longiflorum, per doz.	18 0-30 0
Clematis, per doz.	8 0-90	— lancifolium, per dozen	18 0-24 0
— in flower	12 0-18 0	Lily of the Valley, per dozen	18 0-30 0
Cocos Weddellii, ana, per dozen	9 0-18 0	Marguerites, white, per dozen	6 0-90
Croton, per dozen	12 0-30 0	Orange trees in fruit, each	8 6-50
Cyclamen, per doz.	9 0-12 0	Primula, per doz.	3 0-40
Cypripedium alternifolium, dozen	4 0-50	Selaginella, dozen	4 0-60
— laxa, per doz.	4 0-50	Solanum apocynifolium, per doz.	8 0-12 0
Daffodils, per doz.	6 0-90	Spiraea japonica, doz.	9 0-15 0
Dracanas, per doz.	9 0-24 0		

Fruit: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Apples, per barrel		Grapes (Cape), box	8 0-12 0
Nova Scotian:		— English, Ali-cante, per lb.	2 0-30
— Fallwaters	19 0-22 0	— Gros Colmar, per lb.	2 0-36
— Russels	20 0-24 0	— Almerias, per dozen lbs.	8 0-10 0
— Greenings	16 0-18 0	Lemons:	
— Starks	15 0-16 0	— Messina, case	10 6-16 0
— Baldwins	15 0-17 0	— Lychees, per box	1 0-12
— Blenheims	20 0-21 0	— Mandarines, boxes	1 0-18
— Ribbons	27 0-28 0	— Palermos, 100's, box	8 6-60
— King of the Pippins	23 0-24 0	Nectarines (Cape)	8 0-14 0
— Canadian, per barrel		Nuts, Cobnuts, per doz. lb.	6 0-66
— Russels	23 0-26 0	— Almonds, bags, per cwt.	65 0—
— Greenings	21 0-22 0	— Brazil, new, per cwt.	65 0—
— Ben Davis	17 0-18 0	— Barcelona per bag	32 6—
— Baldwins	18 0-19 0	— Cocoa nuts, 100	10 6-16 0
— U.S.A., New-towns, p. barrel	25 0-30 0	— Italian bags	11 0-13 0
— Newtown Pippins, per case	10 6-16 0	Oranges, per case:	
Bananas, bunch:		— Valencia	10 0-30 0
— West Indian, red	8 0—	— Jamaica	10 6-12 0
— No. 1	6 6-76	— Navels	10 6-14 0
— No. 2	5 6-60	— Jaffa	9 0-12 0
— Extra	8 0-10 0	— Seville Bitters, 300's, boxes	10 0—
— Giants	9 0-12 0	Peaches (Cape)	6 0-10 0
— Jamaica	4 6-60	Pears (California), per case	10 0-11 0
— Loose, per doz.	0 9-18	Pineapples, each	2 0-46
Cranberries, per case	10 0-11 0	Plums (Cape), case	4 0-70
Custard Apples, p. dozen	4 0-60	Strawberries, English, per lb.	8 0-15 0
Dates (Tunis), doz. boxes	4 0—		
Grape Fruit, case 140	—		

Vegetables: Average Wholesale Prices.

	s.d. s.d.		s.d. s.d.
Artichokes (French), per dozen	2 6-30	Mint, per dozen	6 0—
— English, bush	1 0-13	Mushrooms (house), per lb.	0 10-10
— bags	8 6—	— Buttons, per lb.	1 0—
Asparagus, Sprue French, bundle	0 10-10	Mustard and Cress, per dozen pun.	1 0-16
— French Giant, per bundle	25 0-30 0	Onions (Valencia), case	7 6-80
— Paris Green, bundle	4 6-50	— pickling, per bushel	2 0-26
Beans (French), packet	1 6—	— French, bag	2 6—
— Jersey, per lb.	1 0-20	— Dutch, bag	4 0-46
— Haricots, pr. bx.	1 0—	— English, bag	4 6—
— Madeira, per basket	7 0—	Pears (French), per packet	0 4-05
— Niger, p. bask.	4 6—	— French, p. pad	6 0—
Beetroot, bushel	1 8-16	Parsley, 12 bunches	2 0—
Brussels Sprouts, per bushel	1 6-20	— bushel	2 0-26
Cabbage Greens, bags	2 6-30	Parasnis, per bush.	1 8—
— red, per dozen	2 0—	— per bag	2 6—
Carrots, French pad	8 0—	Potatoes (French), crates, per lb.	0 21-08
— per bag, unwashed	2 0—	— Canary, cwt.	10 0-18 0
— washed	2 6-29	Radishes (French), per dozen	1 9-20
Cauliflowers, p. tally	6 0-80	Rhubarb (English), per dozen	1 0-18
— Italian, basket	2 6-29	Salsafy, p. doz. bds.	3 6—
Celeriac, per doz.	2 0-26	Savoy, per mat (holding about 30 to 40)	2 6-30
Celery, p. doz. bds.	6 0-10 0	Seakale, doz. pts.	12 0-14 0
Chicory, per lb.	0 4-05	Spinach (French), per crate	3 6—
Chow Chow, p. doz.	8 0—	Tomatoes:	
Cucumbers, p. doz.	6 0-12 0	— Canary, per bundle	10 0-14 0
Endive, per dozen	1 9-26	— bundle	8 6-40
Horseradish, foreign, doz. bds.	12 0-18 0	— bags	8 0—
Leeks, 12 bundles	1 6-20	— washed, cwt.	8 6—
Lettuces (French), per dozen	1 9-29	Watercress, per doz. bunches	0 4-06
— French, Cos, per dozen	8 0-50		

REMARKS.—A good demand exists for English hot-house Grapes, but supplies are short. There has been a considerable advance in the prices of French Salads during the past week. American barrels of Apples are cheaper. Cape fruit is selling well. P. L., Covent Garden, Wednesday, March 6, 1907.

POTATOS.

Bedfords, 65s. to 80s.; Blacklands, 65s. to 75s.; Lincolns, 70s. to 95s.; Yorks, 80s. to 100s.; Dunbars, 90s. to 120s.; Teneriffe, 10s. to 12s. cwt. Trade is about normal for the time of year. W. J. C. & S., Covent Garden, March 6, 1907.

COVENT GARDEN FLOWER MARKET.

There has been no improvement in trade during the past week, and good flowering plants are more plentiful with a less demand. Azalea indica in all its varieties are so cheap that there can be little profit for the grower, who imports the plants for forcing from Belgium. Dutch Hyacinths are also over-plentiful, but the trade in them is perhaps not quite so bad as it was a few years ago, when several growers were unable to meet their liabilities through the losses sustained on Dutch bulbs. Daffodils are now a leading feature, and one grower informed me that he has done well with these plants this season. Genistas are now in better condition, and Cinerarias are also considerably better in quality than they were, but as supplies are increasing the prices are falling. Cyclamen are more numerous, but many are of indifferent quality. I mention this to remind florists who may be ordering from the provinces to be careful to specify for best plants. There is now much variation in the quality of all market plants, and the standard is not so high generally as when fewer were sent to market. Erica Wilmoreana is one of the best flowering plants seen, and E. persoluta alba is still very good. Supplies of Begonia Gloire de Lorraine hold out well. Lily of the Valley in pots is remarkably fine. Best quality plants of Marguerites are plentiful. Some of the samples of Spiraea japonica, seen are good, but there are some in the market which are a disgrace to the grower. Solanums are now of poor

quality. Ferns are now a better supply, but many have soft, immature spring foliage. The small plants are very good. Palms vary but little, except that the prices for the larger specimens are lower.

CUT FLOWERS.

Supplies are very abundant, and there is a further depreciation in prices all round. Tulips are a leading feature, and of these flowers some remarkably fine double varieties are seen. Prices generally for Tulips are down to about half what they were a month ago. Roses vary greatly. Special blooms on long stems keep up a demand, but ordinary quality are not much wanted. Carnations also vary. Second quality blooms have to be offered at low prices to clear. Enchantress is rather overdone just now. Best "Whites" and "Scarlets" are most in demand. Daffodils of the better sorts are now seen, the principal varieties are Emperor, Horsfield, and Golden Spur. Sir Watkin is also a general favourite. Prices for Callas have fallen considerably, and it is surprising the qualities left unsold at closing time. Lilium longiflorum of best quality are not over abundant, and many are seen with imperfect flowers. All flowers with short stems, such as Azaleas, Eucharis, Camellias, &c., are well supplied, but the demand is not great. Imported flowers are arriving in large quantities. Parma Violets could be bought this morning at from 2s. to 3s. per large bunch, and the "Blues" are also much cheaper. The Paper White Narcissus and Soleil d'Or are cheap, but not of such good quality as usual. Mimosa is now at its best. Ranunculus in various colours are very pretty. The Pink Anemones are not yet quite so fine as we generally see them. A. H., Covent Garden, Wednesday, March 6, 1907.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 6.

Warm days and cold nights. The temperature was mostly high during the daytime and low at night. On the warmest day the highest reading in the thermometer screen was 52 degrees, and on the coldest night the exposed thermometer registered 13 degrees of frost. The temperature of the ground both at 1 and 2 feet deep is now about seasonable. Rain fell on one day, but to the depth of less than a quarter of an inch. This small quantity, however, proved sufficient to restart the bare soil gauge. Previously there had been no measurable percolation through either of the soil gauges for over a week. The sun shone on an average for four hours a day, or for an hour a day longer than is usual at this season. Calms and light airs alone prevailed during the week. The mean amount of moisture in the air at three o'clock in the afternoon fell short of a seasonable quantity for that hour by 7 per cent. Narcissus minimus came into flower in my rockwork on the 3rd, which is 17 days later than its average date in the same spot for the previous nine years, and later than in any of those years.

FEBRUARY.

A cold, dry, and exceptionally sunny month. This was the coldest February for five years. The days were, as a rule, less unseasonably cold than the nights. During the first half of the month there were no unseasonably warm days or nights, and yet it was during the last week that the lowest reading was registered by the exposed thermometer, viz., 18 degrees of frost, by no means an exceptionally low reading for the time of year. Rain, hail, snow or sleet fell on 16 days, to the total depth of 1 1/2 inch, which is about half an inch short of the February average. At no time was the ground completely covered with snow. The sun shone on an average for three hours a day, or for 45 minutes a day longer than is usual. In the last 21 years there have been only four Februaries as sunny. The wind were, as a rule, light, but on one day there occurred a westerly gale, during which, in the windiest hour, the mean velocity reached 26 miles. The mean amount of moisture in the air at 3 p.m. was one per cent. below the February average for that hour.

THE WINTER OF 1906-7.

A very cold and remarkably sunny winter. It is now 12 years since the mean temperature of any winter was as low as that of 1906-7. December and February were cold months, but during the greater part of January high temperatures prevailed both during the daytime and at night. The highest temperature of the season was in no way remarkable, but on one night in December a thermometer exposed on the snow registered 30 degrees of frost—or the lowest reading in any December for 16 years. The total rainfall fell short of the average by about 1 1/2 inch. December was wet, but both January and February were dry months. The heaviest fall of snow occurred on the 30th of December, when the snow lay to a depth of 8 inches. The sun shone on an average for 3 hours 14 minutes a day, or for 35 minutes a day longer than is usual. In the last 21 years there have been only two other winters as sunny.

OUR UNDERGROUND WATER SUPPLY.

Since the winter half of the drainage year began in October the total rainfall has been 15 inches, or 2 inches in excess of the average for the same five months—equivalent to an excess in rainfall on each acre in this district of 45,240 gallons. At the same time last year there was a deficiency of 8,370 gallons per acre. E. M., Berkhamsted, March 6th, 1907.

NEW INVENTION.

A WEED-EXTRACTOR.

Mr. C. E. West, horticultural sundriesman, 11, Norfolk Road, Higham Hill, sends a patent tool for extracting weeds from lawns. It consists of a handle shod with a hollow ferrule that is suspended on its edge, much like a cheese taster. This is pressed over the weed, and by a twist the weed and soil are removed as a core. The implement can be obtained from all seedsmen.

ENQUIRIES AND REPLIES.

BIRD LIME.—I have heard of a kind of bird lime far exceeding any other in viscosity. I should much like to know where it is to be had; it is most useful for catching the detestable sparrow. E. F.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

AGRICULTURAL RESEARCH ASSOCIATION: H. P. The research station of this association is at Glasterberry, Milltimber, near Aberdeen. The hon. secretaries are Messrs. Randal R. Macdonald, Factor, Cluny Estates, and John Milne, Dyce.

APPLE SHOOT: A. L. G. Kindly forward a branch with more eggs upon it than the one you sent, and we will submit it to our entomological expert.

BEECH TREES WITH SCALE: E. T. The boring of holes and insertion of sulphur would do no good. Spraying with the kerosene (paraffin) emulsion would be beneficial, especially if its use could be attended with a brushing of the stems with a stiff brush. Cyaniding with hydrocyanic acid gas, if it could be made applicable, would be even more effective.

BEGONIA FLOWER: D. In our figure last week the only female flower depicted was a terminal flower. The point is this, that female flowers on this plant are usually terminal, which is very different to saying that all terminal flowers are female—as a matter of fact, they are often male.

BOOKS: A. G. P. There are scores of books on botany, and as you do not state your requirements we do not know how to advise you. Presuming you require elementary books we may mention *Scott's Introduction to Structural Botany*, 2 vols., to be had from our publishing department. As an introduction to the natural families and to the knowledge of wild plants, *Dr. Watt's School Flora* (Rivington's) is very suitable.

CABBAGE-LEAF SPOT: R. V. & S. The conical stage of *Sphaerella brassicicola* (see Cooke's *Pests of Cultivated Plants*, p. 82, pl. vii., fig. 100). It has been unusually common and destructive in the past few weeks, rendering crops useless. You had better root up all diseased plants and burn them, disinfect the soil, and plant no *Cruciferae* on the spot for at least two years. Syringe any other plants not yet affected with diluted Bordeaux mixture, so as to prevent infection. It seems to be gaining ground as a pest. The mature spores are produced in the dead leaves, after resting on the ground. Hence all fallen leaves should be carefully collected and burnt.

CAMELLIAS: H. R. We cannot undertake to name varieties of Camellia. Send them to some specialist grower.

CAUSTIC SODA SPRAY: W. G. G. Caustic soda 70 per cent. 1 lb., carbonate of potash 80 per cent. 1 lb., soft soap ½ lb., water 10 gallons. Dissolve the soda and potash in water, and dissolve the soft soap in a further quantity of hot water. Then pour the soapy water into the rest, making it up to 10 gallons with clear water. See also Mr. Spencer Pickering's article on p. 98.

CHAMPION GRAPE CLASS AT SHERWSBURY: F. W. P. It is necessary for an exhibitor to win the cup three times before it becomes his property, but the wins need not be in successive years. It may be pointed out that the Shropshire Horticultural Society regards the proprietor as the exhibitor, otherwise the cup would already be the property of Mr. W. Shingler, who has won it four times, twice for the late Lord Hastings and twice for the present lord. We hope your dispute is now settled amicably.

CORRECTION: *Odontoglossum Waltianum princeps*. By a misunderstanding the note accompanying the illustration in the issue for March 2, p. 135, stated that this was a home-raised hybrid. Messrs. Sander informs us that it was imported with *Odontoglossum Harryanum*.

CROCUS FAILING: B. L. We believe the corms will develop properly after another season, or perhaps two. There is no disease apparent.

CYPRIPEDIUM AND PAPHIOPEDILUM: M. L. L. Yes, the Kew authorities have adopted the name *Paphiopedilum* to indicate a genus distinct from the old *Cypripedium*. The distinctions are that the leaves are rolled (convolute) in *Cypripedium*, the sepals are valvate, i.e., do not overlap in the bud, and if you cut across the fruit or young seed-vessels you will find there is but one cavity, and the ovules, or young seeds, are attached to the walls of the ovary. In *Paphiopedilum* the leaves are folded, not rolled, the sepals overlap in the bud and the seed-vessel is mostly 1-celled, or partially 8-celled, owing to the infolding of the placentas bearing the ovules. It is a matter of opinion which name you adopt. For ourselves we think for cultural purposes it is well to keep to the old genus *Cypripedium*, and adopt the other names to indicate sections or subdivisions of it.

ELM TREE: Scotsman. As you would scarcely wish to retain the tree after it had been killed, would it not be better to fell it at once? If not, it would be an easy matter to kill the roots with carbolic or other strong acid.

GARDENER'S SALARY: H. S. H. We agree with you that the sum offered is inadequate, but as the supply is larger than the demand, and unless gardeners co-operate more readily to improve their position, we fear there is little chance of improvement. The sum you mention might be sufficient for a casual labourer, but not for a trained gardener in a responsible position.

GREENHOUSE AND STOVE PLANTS: F. E. P. We would rather not express a definite opinion on this matter. Logically, a greenhouse plant would be one grown in a greenhouse, and it might perhaps be sufficient for the exhibitor to show that his plants had been cultivated in such a house. But it must be remembered that a species may be a greenhouse plant in one locality, and at one season, but an out-of-doors plant in another locality, or at another season. Until the judges have determined in a particular case whether *Lily of the Valley*, *Narcissus*, *Hyacinths*, and *Tulips* may be included in such a group, it is impossible to determine what view they may take.

GYPHOPHILA FOR VASES: S. G. R. *Gypsophila paniculata* is the species most used in floral decoration and this is abundant at midsummer. The plant is a perennial and requires establishing for two or three years before it will furnish much bloom. The seed should be sown early in the spring and it can also be sown under glass and the seedlings afterwards be planted out when they are well started. *Gypsophila elegans* is an annual species and this comes very quickly from seed. Successive sowings of *G. elegans* may be made from now onwards. The first named species will grow freely in any good garden ground and requires little attention after it is once established. *G. elegans* is often grown under glass for early use, but it can be sown in the open ground in early spring.

IDEAL BOILER: Alpine. We have not had any actual experience of the "Ideal" boiler and therefore are not in a position to say anything as to its heating capabilities. There are several good boilers of the Saddle type that would answer your purpose, such as the "Plain Saddle," with 2-inch waterway, the "Chatsworth," with waterway terminal end and return flue over fire-box, and the "Gold Medal" boiler, having waterway front and back ends, with three return flues over the fire-box, one in the centre and one at either side. A No. 24 Plain Saddle would cost from £11 7s. 6d. to £18 10s., No. 7 Chatsworth from £16 10s. to £19 10s., and a No. 3 Gold Medal would cost from £18 to £21, the difference in prices of the respective boilers is determined by the thickness of plate, one being made of ¾-inch plate and the other of ½-inch, and the approximate heating power of each boiler is 1,000 feet of 4-inch pipe. The above prices are exclusive of furnace fittings, which would amount to £4 10s., £8 10s. and £4 respectively. A No. 1, 6 feet 6 inch horizontal tubular boiler (complete) would only cost £16 10s., and it is capable of heating 1,250 feet of 4-inch pipe. It would practically last a lifetime. Second-hand boilers are more often than not dear at an apparently low price.

There are several first-rate types of tubular and other heating apparatuses referred to in our advertising columns.

KEW HAND-LISTS: Duramen. Apply to the Curator, Royal Gardens, Kew.

LOBELIA: W. B. The young plants of bedding *Lobelia* are attacked by a fungus, *Phoma devastatrix*. Spray with a solution of potassium sulphide, at the strength of one ounce in three gallons of water, and afford the plants plenty of light and ventilation.

MUSHROOM-BED: R. J. The Mushroom spawn is overrun with a parasitic fungus. Your best course will be to remove the bed, and thoroughly disinfect the interior of the house before making a fresh bed with materials obtained from a different source. It is, however, possible, that the parasite was introduced with the spawn.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. Correspondents not answered in one issue are requested to be so good as to consult the following numbers. **FRUITS:** T. A. Flanders Pippin.—R. A. C. B. Filbasket.—Subscriber. The fruit is very much bruised and past its season. Send specimens earlier another season.

PLANTS: J. R. & T. 1, *Cupressus Lawsoniana* var. *aurea*; 2, *Juniperus drupacea*; 3, *Retinospora pisifera aurea*; 4, *Abies Nordmanniana*; 5, *Pinus* probably *monticola*; 6, *Juniperus sinensis*; 7, *Cupressus Lawsoniana*.—P. G. 1, *Fabiana imbricata*; 2, *Grevillea rosmarinifolia*; 3, *Daphne Mezereum*; 4, *Streptosolen Jamesoni*.—Feltham. 1, *Oncidium prætextum*; 2, *Odontoglossum gloriosum*; 3, *Brassia caudata*; 4, *Cypripedium venustum*; 5, *Cœlogyne speciosa*; 6, *Aerides vandaram*.—A. S. Portions of barren fronds of Ferns are not suitable specimens to send for naming, especially without a description of the habit of the plant. 1, *Blechnum occidentale*; 2, probably *Callipteris esculenta*; 3, *Cibotium Schiedeii*; 4, *Lastrea trichodes*; 5, *Aspidium coriaceum*.—W. C. S. *Odontoglossum mirandum* Rchb. f., a very close ally of *O. Lindleyanum*.—A. L., Tunbridge. *Dendrobium speciosum* Bancroftianum Rchb. f. —J. W. *Iris japonica*.

NOTICE TO TERMINATE ENGAGEMENT: W. B. You do not state whether your position is that of head gardener or assistant. Assuming you were engaged in the capacity of journeyman, a week's notice on either side would be sufficient, notwithstanding that the wages are paid fortnightly.

PRIMULAS: H. T. We have seen many better.

VIOLETS: *Violetii*. The leaves are attacked by *Cercospora violæ*, one of the three fungi so destructive to violets. Dilute Bordeaux mixture is the only spray that really arrests the disease, and this should be applied when the leaves are young. The soil should also be covered with the solution.

WINTER HELIOTROPE: J. C. & Sons. This popular plant is named *Tussilago* (*Petasites*) *fragrans*.

WOODLICE IN PLANT HOUSES: S. Obtain a tin of Steiner's Vermin Paste and mix some of the poison with barley meal or middlings, and then spread it on pieces of glass, wood, or tin, and place near the haunts of the woodlice. In a week or ten days most of the pests will be exterminated. The poison can be obtained from chemists.

COMMUNICATIONS RECEIVED.—S. W. F.—E. S. W.—J. C.—E. M.—R. W. P.—C. A. R.—Lady C.—F. M.—E. M. H. B.—A. D.—R. W.—Messrs. Collingridge—W. G. S.—Nederlandsche Maatschappij voor Tuinbouw—E. G. L.—W. C.—R. H. Biffen—H. S. H.—F. B.—E. Young—Nesbitt—A. Bedford—J. A.—P. W.—W. A. P.—J. H.—C. S.—A.—W. G. B.—R. P. B.—H. K.—F. M. W.—W. A. C.—J. D. G.—A. S.—C. G. G.



THE Gardeners' Chronicle

No. 1,055.—SATURDAY, March 16, 1907.

CONTENTS.

Begonia Gloire de Lorraine ...	176	Potatos Violet Com-mersoni and Blue Giant ...	178
Carnations, "Malm-sion," an early batch of ...	174	Prevention of Cor-ruption Act ...	178
Dresden Horticultural Exhibition ...	178	Societies—	
Burdett-Coutts, the late Baroness, ...	178	British Gardeners' ...	178
Frost, great damage by Forcing by immersion in hot water ...	177	Debating ...	179
Frogmore Gardens ...	166	Royal Horticultural (Scientific Commit-tee) ...	177
Fruit plantations, winter work in ...	166	United Hort. Ben. and Prov. ...	178
Fruit register—		Winter-flowering Car-nation ...	178
Apple Ard Cairn Rus-set ...	174	Spring flowers, the earliest ...	175
Gooseberry pest, a new Kew, an attempt to ob-tain poison at ...	177	Temperate House, Kew Gardens ...	172
Motor exhibition ...	178	Trees and shrubs in Scottish gardens ...	168
Larch, the Japanese ...	176	Tulip disease, to combat Water-courses, the cleansing of ...	170
Law note—		Week's work, the—	
Railway rates ...	176	Flower garden, the ...	170
Obituary—		Fruits under glass ...	170
Allis, George R. ...	180	Hardy fruit garden ...	171
Hanbury, Sir Thomas ...	172	Kitchen garden, the ...	171
Marshall, John ...	180	Orchid houses, the ...	171
Orchids, a sale of ...	178	Parks and gardens ...	170
Peas, early and succes-sional ...	176	Plants under glass ...	171
		Wisley and its donor ...	177

ILLUSTRATIONS.

Apple Ard Cairn Russet ...	174
Carnations, Souvenir de la Malmaison, a group of ...	175
Hanbury, Sir Thomas, the late ...	172
La Mortola, views in the garden at ...	167, 169
Palazzo Orongo, the Italian residence of the late Sir Thomas Hanbury ...	166
Spring flowers, a group of ...	177
View in the Temperate House, Kew, in Spring-time (Supplementary Illustration).	

WINTER WORK IN FRUIT PLANTATIONS.

III.

DISTRIBUTING farmyard manure in a fruit plantation devoid of any other roadways than the headlands is slow and laborious work, whether done by means of barrows or willow baskets, known locally as "trugs." Of course, the manure is carted and laid in large heaps on the headlands; but to convey it all over the field is a work of time. Partly for this reason, and partly for the like inconvenience in setting out tubs of spraying wash and in the work of spraying, roadways, as stated in my first article, have been left in plantations recently laid out.

Digging, or, rather, forking with hop spuds, is done only in the older plantations in which horse-cultivation is no longer practicable. Where that can be carried on by means of a Planet Junior cultivator, by working late in the autumn and as soon as the soil is dry enough in the spring, weeds can be kept down fairly, hand-hoeing being done around the trees and bushes during the spring, summer, and autumn. This season, fortunately, horse cultivation was possible as early as the last few days

of February, whereas last year, in consequence of wet weather having driven the work into the Potato-planting season, it could not be started until two months later. But digging must be done where horse cultivation is not possible, expensive though it is. In Kent it is done for 18s. to 24s. per acre, but it costs me 25s. to 30s.

This extra price is caused, at least partly, by the extraordinary tendency of my land to lay itself down to grass. The texture of the soil is very fine in a mechanical sense, and grass and weed seeds, possibly hay seeds from the manure, germinate quickly and freely, so that a month after hoeing in the growing season it becomes almost a pasture. In digging, therefore, the land has to be turned over carefully to bury the grass thoroughly, and not thrown over (thrown forward) after the fashion of digging with hop spuds in Kent. This increases the expense of the work, and, besides, the soil is possibly less easy to dig than most of the Kent land.

PRUNING.

The pruning of Apples in the older planta-tions, largely done by myself, is now finished, but that of young trees planted in December or early in January is being left until the buds begin to start, in order to make sure of cutting the young branches back just above a vigorous bud pointing in the right direction. I am not a believer in the plan of leaving newly-planted trees until the year after planting before cutting them back. The theory of its advocates is that root-growth is stimulated by leaving the branches on the trees for the first season, but this seems to me fallacious reasoning. The roots, reduced by breaking and the necessary trimming when the trees are transplanted, do not want the extra demand upon their resources involved by having to nourish long branches. Moreover, as is always the case when the bal-ance between branches and roots is in favour of the former, much of the energy of the latter is directed to the development of fruit buds. We see this in root-pruning, done for the very pur-pose of developing fruit buds, and newly-planted trees are root-pruned trees. Subject as my dis-trict is to summer drought, I know from ex-perience with trees not cut back enough in the spring after planting what would happen if they were not cut back at all in the first season. They would form fruit buds right up the young branches from the trunk to the tips. It is all very well to say, "Cut below the fruit buds in the second season," but I have had trees in which no wood bud could be found below the fruit buds on some branches. Besides, why promote this waste of energy in the development of fruit buds that are to be cut away?

My Plum trees are not now pruned until March, because when they were pruned in the autumn, or at any later time before the end of the winter, there was much trouble in ends of shoots dying off down to the second, or, in some cases, the third bud left, and the snags had to be cut off afterwards, a very undesirable addition to the work. Nor was this all the disadvantage, for the new growth, instead of coming from the end bud left in pruning, which pointed in the right direction, came from a bud which, as likely as not, pointed the reverse way. Presumably, the dying-off was caused by frost acting on wood not fully ripened. At any rate, the fault is avoidable by doing the pruning in March.

To revert to the older Apple plantations, formed six years back from last autumn, in prun-ing the trees recently I have been freshly im-pressed with the futility of stereotyped rules as to pruning. Not only do different varieties re-quire different treatment, but individual trees of the same variety also need modifications in pruning. Here is a well-furnished tree, with

strong young shoots that require a little thin-ning, perhaps, but no pruning of the shoots left at all. There we have a weak tree, with long and very thin shoots, that need to be cut back severely, or stunted shoots covered with fruit spurs, so that cutting back to the old wood is necessary if the tree is not to be a permanent dwarf. Often this excessive formation of fruit spurs is on only one side of the tree, and then that side requires treatment different from the pruning advisable for the rest of the tree.

TO KEEP THE BRANCHES OFF THE GROUND.

Again, "cut to a bud pointing outwards" is a common direction, but some varieties of Apples try all they can to lie on the ground, so that cutting just above a bud pointing up-wards is desirable for them. Notably, I have found this to be the case with some Lane's Prince Albert, planted later than the other trees, to replace some unsatisfactory ones removed. They were feathered half standards when they were received, and they were topped in order to train them as bushes, like the rest of the trees. It is a pity that they were topped at all, as nearly all the growths have been directed downwards, and it is only by cutting the buds pointing upwards that they have been brought into decent shape in three or four years. On the other hand, there is the converse difficulty with King of the Pippins and Duchess of Oldenberg, which try to grow like Lombardy Poplars. For them the policy is that of cutting to buds point-ing outwards, and keeping them from getting too dense inside.

There is a third class of trees which, although they do not form pendent branches, send their growths out almost horizontally, so that many shoots need to be cut to buds pointing inwards.

BRAMLEY'S SEEDLING, WARNER'S KING, AND WORCESTER PEARMAN.

Another illustration may be given to show the difference in pruning needed to get trees of certain varieties well furnished with branches during the training period. Bramley's Seedling and Warner's King, if not cut back somewhat severely for the first two or three years after the planting, form long and sturdy branches far too thinly disposed, whereas, on the other hand, Worcester Pearmain forks out in several direc-tions above a cut, and gets much too dense with branches if cut back at all severely. This, at least, is my experience with these varieties.

VARIETIES WITH GOOD HABITS.

Lastly may be noticed those blessed varieties which form model bushes if left almost entirely alone after the first two years from planting. Cox's Orange comes just into this class, where it grows sturdily enough, and Allington Pippin, Beauty of Bath, Lady Sudeley, Blenheim Orange, and Lord Grosvenor are better still in this respect. For models of nicely-rounded and well-furnished bushes, however, Royal Jubilee, Domino, and Golden Spire "take the cake," while, so far as can be judged at pre-sent, Charles Ross seems likely to deserve to be classed with them. Golden Spire must be cut back severely to outside buds at starting, as it has a little too much of an upright habit of growth, and is none too sturdy on any but a rich soil, but, so treated, it makes a bush of beautiful shape.

PLUMS

also require very different treatment for the dif-ferent varieties. While Victoria makes long and pendent shoots, too thinly disposed, and re-quires to be cut hard to buds pointing upwards, Monarch is of too upright a habit, needing quite different treatment, while Czar and Pond's Seed-ling with me tend to grow too compactly. Early Rivers is not suited to the bush form at all,

and it has been more trouble to get into any approach to a fair shape than all other varieties together. If cut back much it makes a mass of short and spiky growths, pointing in every direction. But perhaps my stock of this variety is particularly obdurate against proper shaping. They were wild-looking things when I received them, and if Plums ever are budded on the Blackthorn, I should imagine that mine were

FROGMORE GARDENS.

It would be difficult to conceive any private horticultural establishment including glass houses, offices, and kitchen garden that is carried out on a larger scale and on a more utilitarian system than that at Frogmore.

The details in connection with the new buildings are complete, although the latter are on a colossal scale. The heating arrangements for the

fires. The houses themselves are arranged on the corridor principle, and are light and convenient, with ample provision for water in each. In the corridors, sliding doors are employed. These open easily and obviate the danger of slamming, and thus of breaking glass during windy weather. The floors are especially well made, being either iron gratings, mosaic, or a composition, and all have a neat appearance.



FIG. 73.—PALAZZO ORENCO, THE ITALIAN RESIDENCE OF THE LATE SIR THOMAS HANBURY.

(For text see page 172.)

so raised. Perhaps, however, they were budded on the Myrobalan, and this variety, in my opinion, should be budded on the Mussel. Gisborne is the best model of the bush shape among my varieties of Plums.

The winter is ending as I finish my record of its work and the rigmarole of reflections arising therefrom, and it is a comfort to see all kinds of fruit exceptionally backward in development. *A Working Grower.*

many glass houses require 12 miles of 4-inch piping. The mains are laid in a tunnel, and are thus available for inspection from the two stoke-holes to the point where they enter the separate houses. This is a commendable method, and one most useful in the case of leakage. The boilers are each 22 feet in length. The stoke-holes are built in a huge iron tank on account of the lowness of the situation, and to prevent the water percolating and rising higher than the

An interesting feature at the southern end of the range of plant houses, where the ground is lower, necessitating a step up into each house, is a rockery, furnished with low-growing Alpines, bulbs, &c., which must have a pleasing appearance in springtime.

Plants are cultivated on an extremely large scale. At the time of my visit, one span-roofed structure contained 200 large plants of *Eucharis grandiflora* that were most profusely flowered;

indeed, I have not seen so beautiful a display before in the case of this plant. *Eucharis* mite is disregarded at Frogmore, and certainly with a good reason. *Begonia Gloire de Lorraine* was represented by 700 plants. Many were large specimens, and it would be difficult to find a bet-

In the fruit department the same good condition was everywhere apparent. A batch of 9,000 Strawberry plants in pots were giving the best of promise for a goodly supply of fruits.

The recently-planted vines are grown on the single rod system: such varieties as Muscat of

order for a period of at least 30 years. Fine Grapes will no doubt be obtained from these vines in the near future. The Peach trees promised equally well, handsome fruit being borne by those so recently planted, and the appearance of the wood was all that could be desired.



FIG. 74.—SHOWING THE SITUATION OF THE LA MORTOLA GARDEN OF THE LATE SIR THOMAS HANBURY.

(For text see page 172.)

ter batch in foliage and in flower, especially when the smallness of the pots is taken into consideration. Winter-flowering *Pelargoniums* are great favourites, judging by the large stock of plants seen. *Gardenias*, too, were in luxuriant health and in large numbers.

Alexandria and Lady Downes were being treated on common-sense lines in pruning, in not being allowed to fill their allotted spaces too quickly, an all too common cause of failure among vines.

Vines grown on the single rod system should be planted with the view of their lasting in good

A very fine Grape room has lately been built, capable of holding 1,300 bunches, arranged on stands, with abundant space around them for inspection. The bunches are contained in bottles specially designed by Mr. McKellar, in which when the bunch is placed the bottle does,

not tip and allow the water to escape as in the ordinary bottle. This appears to be a capital invention.

Much attention has been paid to the hardy fruit department. Peaches on walls furnished with a coping promise exceedingly well. They were planted last year in the best of loam, which evidently suits their requirements, judging by the growths they have made. Apricots on south and west walls are receiving much attention, and their appearance give promise.

Apples, too, are largely planted as wall trees, Cox's Orange Pippin in particular. An extremely fine row of bush trees of this variety had recently been planted, this Apple being in much request at the Castle. The trees were large ones when planted, some would say too large for successful removal, but now they are established the wisdom of planting such trees is apparent.

What will be an exceedingly fine grass orchard has been planted with the best varieties of standard trees. This is several acres in extent, but a thorough system of trenching was given the land, and it has since been planted with bulbs for a spring display, 100,000 being put in last autumn.

Roses are receiving a large share of attention, no fewer than 300,000 plants having been added during the last three years: the bulk of these are Tea and Hybrid Tea varieties. *E. Molyneux*.

FOREIGN CORRESPONDENCE.

THE TULIP DISEASE: ITS PREVENTION OR CURE.

THE many complaints that have been received during the last few years through the seedsmen and the trade generally, both in this country (Holland) and in Germany, as to Tulips in parks and private gardens failing to bloom, and in many places failing to come up altogether, justify us in giving the results of our trials and investigations in this direction for the benefit of all those interested. We have for the last three years been making extensive trials, based upon the discoveries of Professor Dr. H. Klebahn at Hamburg, who not only succeeded in finding the cause of the Tulip disease, but also the fact that it makes its appearance in two distinct states as if caused by two fungi, viz., *Botrytis parasitica* and *Sclerotium tuliparum*.

We will refrain from going too much into details. Generally the disease caused by *Botrytis* shows itself in the early spring by the very backward and sickly appearance above ground of the first Tulip sprouts, or by their failing to appear at all. Upon lifting such diseased bulbs, the cause of it, in the shape of numerous small black fungi, about the size of a pinhead, or in the case of *Sclerotium tuliparum*, by larger dark brown fungi, can easily be detected adhering to the old bulb or what is left of it. These fungi are usually there by many hundreds at a time together, and under favourable circumstances, viz., in a damp atmosphere, they seed very freely in the spring, and thus cause a very rapid infection of the soil or of the surrounding plants of Tulips. As these fungi will keep alive and retain their vitality for at least two years in the ground, it is not surprising that some grounds are so badly infected that no Tulip bulb will grow in it any more. It would be an easy matter to kill these fungi by application of such disinfectants as "Carbolineum," but experience has proved that the cure is as bad, or worse, than the disease, because it will make ground so treated unfit for any vegetation whatever for several years to come.

The only practical plan, therefore, we find is to lift out any of the bulbs that show signs of the disease, together with the surrounding soil, and at the earliest moment in the spring, taking great care that nothing of it is spilled, and that

all is completely destroyed by burning. If this process is, however, not done with very great care, it had better not be done at all, as the slightest spilling of the infected ground will only cause more spreading of the infection.

The foregoing suggestions are based upon the results of our own trials so far, but may be improved upon in the future as experience may teach us.

As a practical demonstration of the results obtained by the careful weeding out during several years of any suspected subjects, our own Tulips are sufficient evidence. *Polman-Mooy, Bulb Growers and Nurserymen, Haarlem, Holland.*

TREES AND SHRUBS IN SCOTTISH GARDENS.*

(Continued from page 153.)

ABERCAIRNEY.

This place is about four miles out of Crieff and is situated in an undulating well-wooded park. The planting of the coniferous trees was done mainly about 40 years ago, and the growth being particularly good some fine specimens are now to be seen. Taking first the Silver Firs: *Abies Nordmanniana* is 63 feet high; *A. concolor*, 65 feet high and 5 feet in girth (a big specimen); *A. cephalonica*, 75 feet high; *A. grandis*, 90 feet high and 10 feet in girth; these splendid trees were all in perfect health and shape. A good specimen of *A. pectinata* girthed 15 feet 9 inches. The most interesting Spruce was *Picea orientalis*, 63 feet high. The Tsugas, too, were admirable: *Tsuga Mertensiana*, 84 feet high; *T. Pattoniana*, 40 feet, and its glaucous variety (*T. Hookeriana*) 30 feet high. Of the Pines I was most struck by *Pinus Cembra*, 63 feet high and 5 feet 7 inches in girth. A tree of *Larix leptolepis* was interesting as showing the rate of growth of this tree in Scotland; it was planted 23 years ago and is now 42 feet high. The Irish Juniper (*J. communis* var. *fastigiata*) makes here a rigid column 20 feet high and 3 feet through. These figures show that, although the dimensions of some of these trees are exceeded elsewhere, the general level of excellence is exceptionally high.

OGHTERTYRE.

Oghtertyre is situated about 2½ miles out of Crieff in a large, picturesquely hilly park, from which fine views of the surrounding country can be obtained. The garden has long been famous for its Conifers, and probably no locality, even in Scotland, is better adapted to the cultivation of a large number of evergreen trees and shrubs. Much of the present attraction that Oghtertyre has for tree-lovers is due to the late Mr. Geo. Croucher, who was gardener there for 45 years under Sir Patrick Keith Murray and his father. He planted most or all of the rarer trees.

A feature of special interest is the number of garden varieties of Conifers. Of the Douglas Fir, for instance, there is the finest specimen in the country of the variety *Stairii*; it is 39 feet high, well furnished, and of a pale greenish-yellow which is not only distinct, but ornamental. Of the Golden Douglas Fir, a rare variety, there is an admirable tree 40 feet high, and the very glaucous variety is represented by a specimen of the same size in perfect health and colour. The Golden Scots Pine, *Pinus sylvestris* var. *aurea*, is here a big bush 16 feet high and as much in diameter; this variety has the curious habit of assuming its highest colour in winter, turning greener as summer approaches. The glaucous variety of *Picea Engelmanni* [pungens?] is 25 feet high, and the golden variety of *Cupressus pisifera* (commonly known as *Retinispora plumosa aurea*) is 18 feet high, 15 feet in diameter, and in excellent colour.

Turning to the species themselves, *Picea ajanensis* impressed one by its magnificent health and the vivid blue-white colouring of the lower surface of its leaves, which is not surpassed, I think, by that of any other plant in cultivation; one specimen was, approximately, 45 feet high. *Saxegothea conspicua*, a curious Conifer with some affinity to the Yew, introduced from Chili in 1847, is now very rarely

met with; it is, however, in fine condition at Oghtertyre, a plant being 12 feet high and 8 feet through. The Silver Firs have the usual rude vigour of these trees in Perthshire, a specimen of *Abies cephalonica* being unusually fine. I was unable to take its height, but its trunk was 8 feet in girth. Then *A. magnifica* I saw 79 feet high and finer than elsewhere. This species is much less common than its ally, *A. nobilis*, one of the most frequent of purely ornamental Conifers in Scotland. At one time these two species were confused, but seen in the adult stage they are very distinct, *A. magnifica* being denser in habit and much more slender and tapering in form. *Picea Morinda* had a trunk 8 feet 8 inches in girth and was 66 feet high, and of the common Spruce I saw a tree 120 feet high.

It is not only the Conifers that thrive so well at Oghtertyre, some of the ordinary evergreens are very good also. A specimen of Portugal Laurel, for instance, was 30 feet high and 50 feet through; *Ilex crenata*, 7 feet high; *Rhododendron dauricum*, 8 feet high; *Pieris floribunda*, splendid bushes, 10 feet through.

MONZIE CASTLE.

This place, which is about three miles out of Crieff, I visited in a persistent downpour of rain. Although it has not much of unusual interest to arboriculturists, it is worth visiting for the sake of its three enormous Larches. These are planted together in a row, and are said to be of the same age as the more famous trees at Dunkeld, and to have been planted a few days earlier. The largest of them I made to be 108 feet high and 17 feet 6 inches in girth; it is, therefore, about equal to the larger of the Dunkeld Larches. Of other trees I noted *Populus deltoides*, 120 feet high, and the common Birch, 84 feet high. New to me as a hedge plant was the Douglas Fir; it answered the purpose, however, very well, being dense and well furnished.

DALKEITH PALACE.

The gardens of Dalkeith have long been known as among the leading ones of the United Kingdom. Managed by a succession of famous gardeners, they have constituted a school of horticulture from which many noted men have been sent out. One reason of this is that the place is what may be termed an "all-round" one, where neither the kitchen garden, the flower garden, nor the hothouses absorb more than their due share of the attention of the staff, but all are good. For this reason the trees and shrubs, though they constitute a very interesting collection, do not predominate as they do in other famous places I visited. The climate is considerably drier than that of Perthshire, consequently the growth of many Conifers, more especially Firs and Spruces, is not so luxuriant as it is there. Still, I found the Himalayan Juniperus recurva, a fine bush 14 feet high and through, and there are three fine old Cedars, one of which girths 13 feet 9 inches. *Ginkgo biloba* is represented by one of the fine specimens of this country, 50 feet high and very healthy, as are *Abies Veitchii*, 20 feet high, and *Picea pungens*, 18 feet high.

Many years ago the varieties of the Scotch Rose (*R. spinosissima*) were very popular in gardens. Most of them are now almost lost to cultivation, and it was, therefore, a pleasant surprise to find a collection here of about ninety varieties got together by a former Duke of Buccleuch in the early part of the nineteenth century and still carefully guarded.

Among the trees, mention should be made of a very fine weeping Ash, 50 feet high; *Ilex dipyrrena*, 20 feet high; and a remarkable old specimen of *Laburnum*, low, and spreading in habit, and covering a piece of ground 60 feet across. To one whose lot is cast in the south one of the notable differences in the ordinary vegetation of Scotland from that of the south of England is the predominance of the Scotch or Wych Elm over the common *Ulmus campestris*. In the south the Wych Elm is comparatively rare. Here at Dalkeith is the noblest specimen I have ever seen; it is 125 feet high, with a clean trunk girthing 13 feet 9 inches at 4 feet from the ground.

SMEATON-HEPBURN.

The garden of Sir Archibald Buchan-Hepburn at Smeaton in Haddingtonshire is more to the

* Contributed to the *Kew Bulletin of Miscellaneous Information* by Mr. W. J. Bean.

eastern side of Scotland than any other I visited. The growth of the trees and shrubs, however, appeared to me to be quite as luxuriant as in Perthshire, the proximity of the North Sea and the Firth of Forth, I suppose, accounting for this. The Conifers were especially good, some of

species was introduced, is now 90 feet high and girths 13 feet 6 inches. Its ally, *S. sempervirens* (Red wood), was 66 feet high and 9 feet 3 inches in girth, and therefore about the same size as our biggest Kew specimen. *Tsuga canadensis* has the big bushy head characteristic of

and 10 feet 4 inches in girth; as an ornamental tree, however, it has one frequent defect, the centre of the tree being filled with dead branches and twigs, which the outer fringe of living growth is not dense enough to hide. Other trees finely represented were *Pinus excelsa*, *P.*



FIG. 75.—VIEW IN THE LATE SIR THOMAS HANBURY'S GARDEN AT LA MORTOLA.

(For text see page 172.)

them better than I saw elsewhere. *Cupressus macrocarpa*, 72 feet high and 7 feet 6 inches in girth, was finer on the whole than any other I met with, though one on Sir Herbert Maxwell's estate almost rivals it. *Sequoia gigantea* (Wellingtonia), said to have been received from Kew as a small plant soon after the

the tree in Scotland, 40 feet through. *Abies nobilis* is represented by a noble specimen approximately 100 feet high, with a trunk 8 feet 10 inches in girth. *Picea Morinda* was 72 feet high and 7 feet 9 inches in girth. *P. sitchensis*, of which I saw elsewhere such large trees, is here almost as fine as anywhere—80 feet high

insignis, Douglas Fir, *Abies Pinsapo*, and *A. grandis*, all girthing about 8 feet. A good specimen of the cut-leaved Oak, *Quercus pedunculata* var. *heterophylla*, was 54 feet high. Of big shrubs, I noted *Neillia opulifolia*, 30 feet through, and *Spiraea discolor*, 20 feet high.

(To be concluded.)

CLEANSING OF WATER-COURSES.

THE attention of the Board of Agriculture and Fisheries has been drawn to the damage stated to be caused by the neglect of certain occupiers of land to keep clean the channels of water-courses and streams running through their land. It has been suggested that the law which deals with this subject is very little known, and the Board considers that it will be useful to publish, in the form of a leaflet, a short summary of the legal position.

For mere omission a man is not, generally speaking, answerable by law; and, accordingly, at common law, the occupier of land through which a water-course runs is not, as a rule, under any obligation to neighbours whose lands drain into that water-course to prevent or remove any obstruction of the outfall due to merely natural causes (such as silting up of the channel or growth of weeds), and not caused by any action on his part, though, in exceptional cases, e.g., under an enclosure award, such an obligation may sometimes exist.

A statutory remedy is, however, provided by the Land Drainage Act, 1847 (10 & 11 Vict. c. 38), and it appears to be applicable irrespective of any existing legal obligation on the part of the occupier of the land; but the statutory duty imposed by this Act arises only on notice given by the person injured, and the Act does not create any statutory liability in damages for the injury caused by the occupier's neglect.

Section 14 of the Act enacts that where, by the neglect of any occupier to maintain or join in maintaining the banks, or to cleanse and scour or join in cleansing and scouring the channels of existing drains, streams, or water-courses lying in or bounding the lands of such occupier, injury is caused to any other land, the proprietor or occupier of any land so injured may serve a notice on the neglecting occupier requiring him to maintain the banks or cleanse or scour the channels in question. If he neglects so to do, the occupier of the land injured may, after one calendar month from the service of the notice, carry out the necessary work. The cost of the same or a just proportion thereof is to be paid by the neglecting occupier, and payment may be enforced by an order of justices.

Section 15 provides that, unless the drain, stream, or water-course to be cleansed bounds or immediately adjoins the land of the occupier injured by the neglect, a justices' warrant to enter on the defaulter's land in order to carry out the necessary works must be obtained. This warrant is to be granted if the justices are satisfied that the injury has been caused by the neglect of the occupier whose land is to be entered.

4, Whitehall Place, London, S.W.
December 1906.

The Week's Work.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Hardy Ferns.—Last year's fronds may now be removed from the deciduous Ferns, and any unsightly fronds from the evergreen kinds. Frequently other plants, such as spring-flowering bulbs, are grown amongst the Ferns, which will preclude any digging, so that the cultivator must be content with applying a top-dressing, composed chiefly of leaf-mould, or spent hot-bed manure and old potting-shed soil, mixed together in equal proportions, which will suit most species. The Limestone Polypody will thrive the better if some lime-rubble is mixed with the soil. The Spleenworts, which naturally grow out of crevices, do not seem to require any soil assistance, but when endeavouring to establish these Ferns a handful of leaf-mould pushed into the crevices will assist root formation. The present is a good time for moving hardy Ferns and for making new Ferneries. Speaking generally, a low, rugged rockery is a suitable formation. Conditions may there be found to suit the varying requirements of the different species. Shade is essential for Ferns, but it must not be too dense. Although Ferns like moisture, they will sicken in a stagnant soil.

Lawn-mowing.—Search the lawns for stones and see that the lawn mower is thoroughly oiled before the first mowing takes place. Choose a

dull day in preference to a sunny one, as there is then not so much danger of a frost, which, following immediately after the first cutting, would blacken the grass.

Hedges.—Any growth that was made in the Holly hedges after the last autumn clipping may now be pruned. Care must be taken, or the hedge will become too wide at the top, and, in consequence, thin below. Clear out any weeds, or Ivy that may have become established, and after lightly forking the surface soil apply a top dressing. As April is the best time to plant the Holly, preparations for this work must now be made, deeply digging the soil, and working into it a good dressing of farmyard manure. As a hedge to border the Rose garden, the Penzance Briars are very appropriate; the common Sweet Briar makes a very good hedge, and will stand a deal of pruning. The various forms of *Pyrus japonica* are also adapted for forming hedges, and if, after they have grown to the desired height, due attention be paid to summer-pruning, they soon form flowering spurs. Lavender and Rosemary hedges have much to recommend them where the style of gardening requires divisions of medium height.

Cordylina australis.—Seeds sown now in pans of light soil and placed in heat will quickly germinate, and if kept growing in light, rich soil will, by June, have formed plants which, when duly hardened off, will be useful as small "dot" plants for carpet bedding, or to plant near the outsides of "foliage" beds, &c.

PUBLIC PARKS AND GARDENS.

By W. W. PRITTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Hatching of fish (continued from p. 154).—The necessary apparatus used in the incubation of trout ova may either be placed under cover or out in the open, just as circumstances demand. If under cover, the structure used may be of stone, brick, or wood, and for the purpose of keeping a steady atmospheric temperature within, should always be roofed with heather, straw, or some other good non-conducting material, and, provided utility is secured, the whole structure may be of the cheapest possible character.

The building.—When it was decided to erect a hatchery in one of the parks here, it was naturally arranged to put up a building in keeping with its surroundings, hence it was built of brick and covered with a thatch roof. In view of its being of educational value to school children, &c., it was made larger and more roomy than there was otherwise any necessity for, and to add a further interest a part of the building was converted into an aquarium, where various kinds of coarse fish—with occasionally a few of the trout bred in the hatchery—are exhibited in glass tanks. The whole of the building is 37 feet long by 16 feet wide, and the portion devoted to fish-hatching is in all 12 feet by 16 feet—ample space in which to hatch far more trout than we require for our own use.

Open-air hatchery.—Since this building has been put up we have formed an open-air hatchery, where it is possible to incubate 100,000 trout ova at one time.

Necessary apparatus.—The most important apparatus required in a hatchery is a number of shallow boxes in which the trout eggs lie during incubation. Where wooden boxes are used the ova should rest on glass grilles or on zinc trays, rather than on the wood. With slate boxes this precaution is not needed, as the ova do not suffer harm from resting on the slate. A constant supply of pure water has to flow over the eggs at all times, for if the water be allowed to stand in the boxes for any appreciable length of time it soon becomes charged with the carbonic acid gas given off by the eggs, and the eggs are killed. If the water supply is derived from a stream that runs any risk of becoming dirtied during wet weather, it must be passed through a number of filters before it is allowed to come in contact with the eggs, otherwise there would always be the chance of a deposit of dirt taking place on the eggs, when the results would be disastrous. On the contrary, while water which is obtained from a good spring need never be filtered, it ought to be broken up and aerated as much as possible before it reaches the hatching boxes, to get rid of some of the carbonic acid gas with which spring water

is often charged. In our main hatchery we are fortunate enough to have the town water supply laid on, while the one in the open air is fed by a beautifully clear spring. In the former we have 12 slate trays, capable of holding between 25,000 and 30,000 ova. If it were not for the fact of our arranging the hatching boxes in such a way as to admit the public to view the process, there would be ample room for ten times as many ova as is laid down each season.

A "decoy" pond.—As the stream which supplies our lake is mainly the property of the city, we deal a little more freely with it in making provision for capturing and breeding fish than might be possible if it belonged to a number of different landowners. For instance, with a set purpose in view, we have constructed a decoy pond leading off from the stream at a point where a dam crosses it. By having this decoy pond it is not necessary for us to keep a stock of breeding fish, as we are always able to secure as many as we require. During the summer and autumn this pond is used as a rearing pond for the young trout, but about the end of September they are taken from it and placed elsewhere. In November the screens which divide it from the brooks are removed, and as soon as the winter floods commence the trout, failing to get over the dam, enter the pond, where they are easily captured. This contrivance would hardly be allowed on every stream where trout fishing is carried on!

(To be continued.)

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMPSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Muscat vines are now showing the inflorescence which will develop generally at the third or fourth leaf of the lateral shoots. At this stage the atmospheric temperature at night should be 60° to 65°, allowing a rise to 70° by day, and 85° with sun heat. Damp the paths and borders once or twice daily. Admit a "chink" of air through the top ventilator when the weather is favourable, and shut up with sun heat early in the afternoon. Prevent currents of cold air from reaching the foliage. Shut down the hot-water valves in the morning if there is the promise of a bright day. Keep the atmosphere of the house close and warm, but an excess of moisture at this stage would have a tendency to cause the bunches to become long and loose. This often happens in the case of old vines if they are syringed once or twice daily. I neither practise nor recommend the syringing of vines, except when they are attacked by red spider. As soon as the lateral shoots have made five or six leaves, pinch the points out of them; this will be one or two leaves beyond the bunch. Pinch all sub-laterals at the first leaf. Do not hasten to have the laterals tied in to their permanent positions, but let this be done by degrees and with great care. As soon as all the bunches have run out to sufficient length, select the best on each lateral, and cut off the others.

Earliest vines in pots.—These will require to be very carefully watered with warm manure water twice weekly, reducing the supply of water at the roots as soon as the berries commence to develop colour. Employ rather more ventilation as the days lengthen, and keep the atmosphere much drier. Red spider will soon make its appearance if the house or plants are too dry and hot. Employ the syringe if red spider actually attacks the pot vines.

Strawberries.—When several batches of these are coming forward, care must be taken that all the batches are not in the same degree of heat. Those that have been removed to a shelf in the Pine stove, Melon or Cucumber house, and are now swelling their fruits, will require an atmospheric temperature of 60° to 65° at night, with 10° to 15° higher by day. Place stakes or twigs to each truss of fruits. Thin the berries, leaving eight or ten of the largest and best-formed to each pot. Afford the plants tepid liquid manure twice a week, and maintain a moist atmosphere. When the berries commence to develop colour, reduce the amount of moisture, and admit air more freely. Plants coming into flower will require heat equal to 55° to 60° at night, and 10° higher with sun heat by day. Pollinate the flowers at mid-day by means of a camel's-hair brush or rabbit's tail. Remove succession batches from the frames into late Peach houses.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Thunias.—The following species of *Thunia* as *T. Marshallii*, *T. Bensoniæ*, *T. alba*, *T. candidissima*, *T. pulchra*, and the hybrids *T. Veitchiana*, *T. Brymeriana*, &c., are invaluable for exhibition purposes during the early summer months. All of them are of easy culture, but they succeed best in a comparatively hot atmosphere, such as is generally maintained in the East Indian house or plant stove. These deciduous plants will need immediate attention as to potting; the young growths at the base of the old stems have already commenced to develop, and it is important to do the work before these shoots begin to produce new roots. The plants should be turned out of their pots, and the whole of the soil shaken from them, all dead roots cut, and the stems thoroughly cleaned of scale insects or red spider, by washing them in strong soft-soapy water or the XL-All insecticide wash. The usual method of growing *Thunias*, six or eight stems in a clump, is a very convenient one, as when the plants are in bloom the drooping spikes have a better effect than when they are cultivated singly in small pots. Select clean, good-sized pots, according to the strength of the plants, and half-fill them with crocks for drainage, placing a thin turf of fibrous loam over them. I have tried these *Thunias* in various kinds of compost, and find the stems keep more dwarf and sturdy and bloom more freely in the following mixture than any other:—Good fibrous turfy-loam, three parts; leaf-soil, broken crocks, and coarse silver sand mixed together, one part. Pot the plants in the usual manner, but not too firmly, or most of the roots would remain close to the surface instead of penetrating to the whole depth of the soil. Tie each stem firmly in its place by means of strong neat sticks. For a few weeks after re-potting, keep the plants in the house where some of the *Dendrobiums* are at rest and where the atmospheric temperature at night at this season is kept at between 55° and 60°. Afford them little or no water until the shoots have grown to several inches in length, when the plants should be removed to the lightest position in the warmest house, elevating them well up to the roof glass. Increase the supply of water as the growths lengthen, and when thoroughly established and the roots are numerous, afford them an occasional watering with weak liquid manure.

Materials for potting.—During the next few weeks many plants will need attention as to re-potting, &c., therefore it is advisable to obtain a good store of Orchid peat, and living sphagnum-moss, also plenty of small crocks; place a sufficient quantity of fibrous loam on the potting bench, which will be required for species of *Habenaria*, *Thunia*, *Calanthe*, &c.

Anguloas, &c.—*Anguloa Clowesii*, *A. uniflora*, *A. Ruckerii*, *A. eburnea*, *Chysis bracteata*, *C. aurea*, *C. Limminghii*, *C. lævis*, *C. Sedenii*, *C. Chelsonii*, and others of this type are commencing to grow, but, as the flowers develop in conjunction with the young growths, the plants should not be disturbed by re-potting, which is best done when the flowers have faded. Keep the *Anguloas* in the intermediate house, but the *Chysis* should be suspended close to the glass in a shady corner of the Cattleya house. Plants of both genera should be given sufficient water to keep their roots moist until the time arrives for re-potting. The young growths and flower buds of *Chysis* are frequently disfigured by a small yellow species of thrip; therefore, whether these insects be present or not, see that these plants obtain a goodly share of the fumes of the vaporising compound when fumigating the structure.

PLANTS UNDER GLASS.

By J. G. WATSON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Ivy-leaved Pelargoniums.—Young plants rooted last season should be re-potted, giving constant attention to the stopping and tying of the shoots. Old plants that have been wintered in a cool, dry house, now commencing to grow, and are intended for forming specimen plants, should be re-potted and placed in an atmospheric temperature of 55° to 60°, affording

ventilation whenever the outside conditions are favourable. Train the plants carefully to stakes, and arrange the growths with the idea of completely covering the stakes. Large plants are useful either for conservatory decoration or for use in the pleasure-grounds, flower-garden, or terrace.

Zonal Pelargoniums.—To provide plants for flowering in autumn and winter, cuttings may now be inserted in boxes or pots. If space is limited, insert a number together in boxes, and place the boxes on the hot-water pipes, where there is a very moderate heat. As soon as roots have been made, put up the cuttings singly, and place them in a position exposed to the light, either on a shelf or in a frame well up to the glass. Re-pot them when necessary, and later in the season, when they are established in their flowering pots, they should be stood on a bed of ashes in a sunny position out of doors. Keep all blooms pinched off until the end of August. Remove the plants indoors at the end of September, or earlier, if heavy autumnal rains are more than usually prevalent.

Primula × Kewensis.—This beautiful hybrid flowered very freely all through the winter, and its clear yellow flowers were a great contrast to the different forms of *P. obconica*, with which it has been associated, the cultural treatment necessary for the one being suitable for the other. Seeds of *P. × Kewensis*, *P. sinensis* var. *stellata*, and *P. obconica* may be sown during the present month, if early-blooming plants of *P. stellata* are required in autumn. Sow the seeds in pans filled with very light, sandy soil, made moderately firm, and cover the seeds very lightly. Place a piece of glass over the pan, and stand it in a frame for preference, where there is an atmospheric temperature of 60°. Keep the pan shaded from the direct rays of the sun, taking great care that the soil never becomes quite dry, this being a frequent cause of failure with small seeds.

Hydrangeas.—The early batches of these in full growth will now require liberal stimulants, also copious supplies of water. The latest plants are starting into growth naturally. Both *H. Hortensia* and *H. paniculata grandiflora* are very useful for growing in pots.

Flowering shrubs will now require very little forcing to get them into bloom. Do not subject them to much heat after the blooms show colour.

Tulips, Narcissus, and Hyacinths now require no forcing, the different varieties coming into bloom very quickly at this season. Remove to a cool house or frame any required to be kept back.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Early Potatoes.—Tubers should now be planted in a position where they will receive the protection of a wall or hedge, but if this is not possible, a few should be planted on the warmest border available, and later on, when they appear through the ground, afford them protection each night. Select those varieties known to have good cropping qualities, and with a dwarf haulm such as *Sharpe's Victor*, *May Queen*, &c.

Maincrop Potatoes.—Where large quantities of these are grown for the winter's supply, the seed-tubers, if not already prepared, should be at once thoroughly and carefully examined, particularly if the presence of any bad ones is suspected, previous to being put in bags for their conveyance to the fields or elsewhere. Planting should be commenced at the end of the present month, or early in April. The variety *Up to Date* still appears most popular, and several of the newer introductions are very similar to this variety. *Dalmeny Beauty*, in spite of the large tubers it produces, finds favour here, for its cooking qualities at this time of the year are unexcelled.

French Beans will now be giving good results in pots, but as the weather becomes warmer, they will require even closer attention, and more frequent syringings, or they will quickly fall a prey to red spider and thrips. Sowings may now be made for raising plants for planting out in a cold house or in frames to yield a supply

after the last batch of those forced, and before Beans will be procurable out of doors.

Celery.—Plants raised from earlier sowings are liable to bolt, unless lifted early for consumption. The main sowing should now be made in a light, rich soil. Any of the following varieties may be selected:—*Standard Bearer*, *Aldenhams Park*, *Sandringham White* and *Solid White*. The receptacles in which the seeds are sown should be placed in a moist atmosphere that is kept at a temperature of 55° or not higher than 60°. As soon as germination has taken place, let the seedlings be placed near to the glass, and prick off the most forward plants as soon as any are large enough to be handled, leaving the smaller ones a week or more longer; this will help to prevent the plants becoming weakly and drawn. Afford more fresh air gradually as growth advances and the atmosphere out of doors becomes warmer. The most backward plants from the sowing will be considerably behind those that are first pricked out, and will form a late batch, which may be useful for flavouring soups, if not required for planting out in trenches. If the trenches for Celery can be made at an early date, the ridges might be utilised for crops of French Beans, Lettuce, early Turnips, &c., which would all be ready for clearing off before the Celery will need earthing-up.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

The Grape Vine.—With a succession of summers like that of last year one could recommend an extended culture of out-door Grapes, but in the average season many of the bunches of fruit fall a prey to mildew, or fail to ripen in a proper manner. A vine or two are to be found in many an old garden, planted more for the purpose of their foliage than for their fruit, the former being largely used for dishing up ripe fruits, being more durable than leaves gathered under glass protection. Intending planters should choose a southern aspect, and for preference a brick wall, as such walls retain the sun's heat much longer than stone. A well-drained soil is essential, and good, friable loam to the depth of 18 or 24 inches is ample. It is better to allow a little extra width than let the roots get down into the cold subsoil. Keep the border rather above the ordinary ground level in low situations and where a heavy rainfall is registered. Commence planting at once; shake away all the old soil, then uncoil and spread out the roots evenly, covering them with about 3 inches deep of soil, which should be well worked down among them as covering proceeds. Fasten the cane to the wall, and as the season advances, see that the roots do not suffer from the want of water. All necessary pruning of the vine ought to be done as soon as the foliage falls in the autumn. The old Dutch Sweetwater, Royal Muscadine and Reine Olga are suitable varieties, the first-named being, perhaps, the most reliable.

General work.—Examine autumn and more recently planted trees, treading well around any that may have got loosened by the wind, and see that no stake or support is injuring the bark of the tree. Any badly-rooted trees that have been transplanted and show signs of still remaining dormant should be syringed overhead two or three times daily when the weather is bright, and all blossom buds removed as soon as they become visible. The weather during the past fortnight has been favourable to the destruction of weeds on fruit quarters. Further sprayings of fruit trees and bushes must now be put off until another winter. Although the winter has been more severe than for some years past, there is but a few days difference in the first open flowers of the Apricot, for coping and netting had to be put up here on the 7th inst. It is a pleasure to record a plentiful show of blossom buds on nearly every variety of fruit tree and bush. Keep a sharp look-out on Black Currant bushes for "big-buds," removing any to the fire than can be found. Some cultivators syringe their bushes with a mixture of equal parts lime and sulphur, after being boiled down; 6lb. of each in 12 gallons of water, putting about a quarter-pint of this into a 4-gallon can of water. It may be preventive, but is not a cure. In the case of badly affected bushes, the wisest plan is to grub them all up and burn them, choosing a new station for replanting next autumn with clean stock.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MARCH 16—German Gard. Soc. meet.

TUESDAY, MARCH 19—
Roy. Hort. Soc. Coms. meet.
British Gard. Assoc. Ex. Council meet.

THURSDAY, MARCH 21—
Linnæan Soc. meet.
Torquay Spring Fl. Show.
Manchester & North of England Orchid Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—41.5°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, March 13 (6 P.M.): Max. 52°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 14 (10 A.M.): Bar., 29.9°; Temp., 46°; Weather—Bright sunshine.

PROVINCES.—Wednesday, March 13 (6 P.M.): Max. 48°; Lancaster; Min. 37°, Scotland S.E.

SALES FOR THE ENSUING WEEK.

MONDAY—
Liliums, Perennials, Roses, Azaleas, &c., at 67 & 69, Cheapside, E.C., by Protheroe & Morris, at 11.

WEDNESDAY—
Azaleas, Hardy Plants and Bulbs, Liliums, Palms and Plants, at 11; 4,000 Roses and Fruit Trees at 1.30 and 4; by Protheroe & Morris, at 67 & 69, Cheapside, E.C.
Plants, Roses, Lilies, &c., at Steven's Rooms, King Street, Covent Garden, W.C.

FRIDAY—
Hardy Bulbs and Plants, Roses, Azaleas, &c., Choice Orchids from various sources, all at 67 & 69, Cheapside, E.C., by Protheroe & Morris; the compact Freehold Nursery, Mimbridge Nursery, Woking, Surrey, with Greenhouses, Piping, &c., at the Mart, Tokenhouse Yard, E.C., by Protheroe & Morris, at 2.

The announcement of the death of Sir Thomas Hanbury on the 9th inst., at La Mortola, near Ventimiglia, will be read with regret as deep as it is widespread. He was born in 1832 at Clapham, a member of a family well known for a succession of representatives distinguished in many departments of industry, science, and philanthropy. To horticulturists Sir Thomas is best known by his munificent gift of the late Mr. George Wilson's garden at Wisley to the Royal Horticultural Society in 1903. Chiswick, with all its glorious associations, was no longer suitable for the proper carrying out of its appropriate functions. Each year the local conditions became worse. At the same time, the necessity of a home for the Society was equally or even more pressing. Every Fellow of the Society, and many besides, will remember how, by the most happy conjunction of favourable circumstances, the hall was built mainly in consequence of the devotion of Baron Schröder, and the garden at Wisley secured for the use of the Society entirely by the liberality of Sir Thomas Hanbury. Thus was the centenary of the R.H.S. a matter which had elicited prolonged discussion and much difference of opinion most appropriately celebrated. Although this timely and most serviceable donation is the circumstance which will elicit the grateful remembrance of the larger number of horticulturists in this country, it is by no means the only

claim that Sir Thomas had on the gratitude and esteem of his associates. After some years of successful enterprise as a merchant at Shanghai, Sir Thomas purchased the Palazzo Oregno at La Mortola, a little Italian village just beyond the French frontier at Mentone, and near the old Italian town of Ventimiglia, about midway between the towns of Nice and Genoa. Here, with the assistance of his brother, the late Mr. Daniel Hanbury, a botanist and pharmacologist of eminence, he set to work to establish an experimental botanic garden, in which were cultivated as many of the noteworthy plants of various countries as would thrive in the generally favourable though sometimes trying climate of the Genoese Riviera. Working in association with the late M. Thuret and M. Naudin, of Antibes, the authorities at Kew and many other distinguished botanists and horticulturists, Sir Thomas amassed a particularly interesting collection of plants. How rich it was may be judged from the lists that he was wont to send us yearly of the plants in flower about Christmas or New Year's Day



THE LATE SIR THOMAS HANBURY, K.C.V.O.

as well as from the exchange lists that he issued periodically, and the many illustrations of remarkable plants that have been published in these columns. A long chapter is devoted to this garden and its contents in Strassburger's "Rambles on the Riviera," an English version of which was published in 1906 by T. Fisher Unwin, of Adelphi Terrace, and noticed in our columns at the time of publication.

"No visitor to Bordighera or Mentone should omit to make an excursion to La Mortola, the garden of Sir Thomas Hanbury. The public are admitted on Mondays and Fridays on payment of one franc. This money helps to support the Hospital of Ventimiglia. Those wishing to study in the garden will receive permission from the owner to visit it at any time. The beautiful Palazzo still standing in the grounds takes its name from the former owners, the Oregno family of Ventimiglia. When Sir Thomas Hanbury acquired this estate in 1866 there was a scanty Olive grove on it. With the aid of experienced and skilful gardeners he has converted it into the fairy-like spot which now charms the visitor. The late Mr. Daniel Hanbury, F.R.S., F.L.S., &c., brother of the owner,

assisted with his scientific knowledge in laying the foundation of this vast collection of plants. The garden covers an area of about 40 hectares. It slopes up steeply from the sea to a height of 300 feet, where the road passes through the village of La Mortola. The deep hollow in the nummulitic limestone in which part of the garden is situated affords protection against winds, and permits of the development of such luxuriant vegetation as can scarcely be equalled on the Riviera. It is, indeed, only by irrigating the whole estate that the summer drought is prevented from being fatal to the plants. For at La Mortola they reckon on over 200 cloudless days in the year: and even during the six winter months there are only about 40 rainy days.

"It would be a rash endeavour to attempt to describe the innumerable plants which have been brought together in the gardens of La Mortola. I can do no more than mention its rich profusion and splendour, and draw attention to the valuable information which every visitor can there glean for himself. For each plant bears a label, on which is inscribed its name, native country, and natural order. A catalogue of the garden, published in 1889, included about 3,600 different plants. Since then their number has been much augmented by the addition of new species of scientific interest or technical importance. All botanical institutions duly receive the catalogue, with permission to draw upon the treasures of the garden for scientific purposes. Sir Thomas Hanbury is careful to entrust the management of his garden to competent hands. Hitherto this duty has fallen to the lot of industrious and scientifically-trained gardeners. Mortola is almost unique among private gardens, and should arouse the emulation of other wealthy landowners."

The Botanical Institute of Genoa, under the direction of Professor Penzig, was also founded by the Cavaliere Hanbury, as he was styled in Italy, and numerous works of beneficence and charity were unostentatiously performed by him. The writer of these notes was privileged on one occasion to visit one of the village schools supported by Mr. Hanbury, as he then was. Observing the intimate terms in which he seemed to be with the clergy of the neighbourhood, some dignitaries of the church being present on the occasion, it was interesting to observe how a foreigner and a member of the Society of Friends had succeeded in gaining the esteem of the Roman Catholic clergy. Where beneficence and the welfare of his neighbours had to be considered, differences of creed and nationality were not suffered to intervene; for instance, it is reported that only a few days before his decease Sir Thomas gave £2,000 for a public garden at Ventimiglia. We are glad to hear that Mr. Arthur W. Sutton, a member of the Scientific Committee of the R.H.S., attended the memorial service which was held at Mentone on the 13th inst.

OUR SUPPLEMENTARY ILLUSTRATION to the present issue affords a glimpse of a portion of the great Temperate House in the Royal Gardens, Kew, as it appears in spring-time. The Acacias, Camellias, Rhododendron (*Azalea mollis*), Prunus, Pyrus, Cerasus, and species of the warmer temperate zone are in bloom, and at such a season this house may be seen at its best. At all seasons of the year the extreme variation in the foliage of the different species is interesting, and this feature is shown in the present illustration, where the striking appearance of the *Cordylines* and *Phormium* is impressive, but when the spring flowers arrive they add an appreciative gaiety to the scene. Reference is made in another column to the remarkable garden that belonged to



Photo by C. P. Raffill.

VIEW IN A PORTION OF THE TEMPERATE HOUSE, KEW, IN SPRING-TIME.

the late Sir THOMAS HANBURY in the Italian Riviera, where it is possible to grow out of doors under Italy's sunnier skies most of the plants that in this country thrive the better for having such protection as the Kew Temperate House affords them. A descriptive account of the principal species in this house was printed in our issue for July 23, 1904.

LINNEAN SOCIETY.—At the evening meeting to be held on Thursday, March 21, 1907, at 8 p.m., the following paper will be read: Messrs. E. A. NEWELL ARBER, M.A., F.L.S., and JOHN PARKIN, M.A., F.L.S., On the Origin of Angiosperms. Exhibitions: 1, Miss HELEN WARD, Water-colour Sketches of Alpine Flowers; 2, Mr. J. BURTT-DAVY, F.L.S., Photographs of Transvaal trees and tree-scenery.

BRITISH GARDENERS' ASSOCIATION'S CERTIFICATE RECOGNISED BY THE CARDIFF CITY COUNCIL.—The Cardiff City Council on Monday last passed a resolution to the effect that trained gardeners (as defined by the British Gardeners' Association) employed in the Parks Department shall be paid 27/- per week, and upon their passing the Royal Horticultural Society's Parks Employees' Examination they shall receive an increase of one shilling per week per annum until a maximum of 30/- be reached.

THE ROYAL SOCIETY.—Among the 15 selected candidates (out of over 90 representatives of all branches of science) for admission to the Royal Society this year we notice the name of Mr. H. N. RIDLEY, formerly of the Natural History Museum, and for several years director of the Botanic Gardens, Singapore. The selection will have to be confirmed by the Fellows. Mr. RIDLEY is an occasional contributor to these pages.

PREVENTION OF CORRUPTION ACT, 1906.—The following extract is taken from the Board of Trade journal lately issued. "Cases of commissions being offered by certain foreign firms on orders secured in this country having been brought to the notice of the Board of Trade, the Board desire to draw attention to the 'Prevention of Corruption Act, 1906,' by the provisions of which the acceptance, or agreement to accept, by an agent, or the offer, or agreement to offer, to an agent, of anything in the nature of a secret commission is punishable on conviction by imprisonment, with or without hard labour, for a term not exceeding two years, or to both imprisonment and such fine, or, on summary conviction, to imprisonment, with or without hard labour, for a term not exceeding four months, or to a fine not exceeding fifty pounds, or to both such imprisonment and such fine. The Act came into force on the 1st January, 1907."

THE BARONESS BURDETT-COUTTS.—We extract from *Nature* the following interesting note:—"If a scholarship was to be established at Oxford, not classics, or history, or even theology, but science claimed her aid. Such things were not done at haphazard. She would spare herself no trouble both to search out both the need and the means. With a touch of characteristic humour she enquired of Sir WILLIAM HOOKER whether Kew Gardens, so far up the Thames, was not poor in sea-weeds. She had already found out the fact and had secured the GRIFFITHS collection so rare and extensive that without impairing the central completeness it provided duplicates for six other botanical establishments. She probably had not read SCHIMPER's monograph on the genus *Sphagnum* and did not know the details of the muscological collection of BRUCH, but she found out that Kew also wanted mosses and that SCHIMPER's great herbarium could be acquired; thus, not so much by wealth as by thoughtful insight, special departments of British science were enriched at her hand."

THE "CHILLINGHAM" ORCHID SALE.—The sale of duplicates from the collection of the Right Hon. the Earl of TANKERVILLE, which took place at Messrs. PROTHEROE & MORRIS' Central Auction Rooms, on March 12, proved very successful, the 251 lots realising in the aggregate £3,288. *Odontoglossums* were the favourite plants as usual, and the highest price attained was for lot 152, *O. crispum* Leonard Perfect, 700 guineas. It is a part of the remarkable plant shown by Messrs. SANDER & SONS, at the Temple Show, 1906, and illustrated in the *Gardeners' Chronicle*, June 2, 1906, pp. 348-9. Lots 64 and 140, being two plants of *O. crispum* Mabel Whateley, brought 180 and 200 guineas respectively; 168, *O. crispum* Brilliantissimum, 180 guineas; 208, a similar plant, 140 guineas; 52, *O. crispum* Tankervilleae, 100 guineas; 116, *O. ardentissimum*, Chillingham variety, 100 guineas; and other *Odontoglossums* fetched good prices. Of the *Cypripediums* a small plant of one of the most beautiful, lot 172, *C. Thalia giganteum*, brought 50 guineas; 105, *C. Victory*, 40 guineas; 100, *C. x Earl of Tankerville*, 50 guineas; 60, *C. Lord Ossulston*, 17 guineas; and the prices realised for good forms of *C. euryades*, *C. aureum*, and other of the older favourites in some cases were higher. The best price for a *Cattleya* was for lot 153, *C. Warneri* alba, 220 guineas, and in this class the white varieties well maintained their value. Lot 84, *C. Dowiana* Rosita, realised 42 guineas, and throughout the sale appeared to be very satisfactory.

POTATO VIOLET COMMERSIONI AND BLUE GIANT.—The controversy still rages over these varieties. *The Revue Horticole*, in its issue for March 1, calls attention to a lecture by M. VINCEY. With regard to the three varieties of Potato Violet Commersoni, Blue Giant and Richter Imperator, one and, better still, two dressings of copper sulphate certainly caused an increase in the yield; but it is remarkable that, even without any dressings and with the largest amount of irrigation, Violet Commersoni yielded a much larger crop than did Blue Giant and Richter Imperator after two applications. All the conditions of the irrigation being otherwise equal, with two copper dressings in each case, the yield of Violet S. Commersoni was more than twice as large as that of the two other potatoes. From this experiment, M. VINCEY draws the following conclusions:—(a)—For cultivation on a large scale, more especially in a very permeable soil, alternately moist and dry owing to irrigation with sewage matters and with a food supply far exceeding the requirements of the crop, Violet S. Commersoni is a valuable acquisition owing to its exceptional quality for supporting, satisfactorily, intensive applications of sewage. (b)—As regards general cultivation also, this variety is of much interest owing to its resistance to mildew and its total yield and proportion of starch. (c)—In its characteristics, under cultivation at any rate, Violet Commersoni is an entirely different plant to Blue Giant.

ATTEMPTED SUICIDE.—At Richmond police court, on Friday, February 22, a clerk of West Kensington, was charged with threatening to commit suicide by taking poison, on the previous day, in Kew Gardens. Mr. JOHN MASTERS HILLIER, keeper of the museum at Kew Gardens, saw the man leaning against a bay for about half an hour, and when accused left he found that a fracture in a big glass door of a case containing atropin had been made much worse, the glass having been smashed. He gave the attendant strict injunctions to watch in case the man returned again, as he did the next day. The attendant then told witness that accused had been tampering with the case again. Witness asked him what he was after, and prisoner replied, "Atropin; I want to take a dose." He added, "I have nothing to live for." After other evidence had been given, the Bench discharged accused after he had expressed regret for his proposed action.

GUERNSEY, with an area of about 40 square miles, has, it is estimated, 8,000 growers for market. *American Florist*.

COMMERCIAL MOTOR EXHIBITION.—At this exhibition at Olympia, London, which will close on the 18th inst., Messrs. BOULTON & PAUL, Ltd., Norwich, are exhibiting in the motor boat section, and Messrs. RANSOMES, SIMS & JEFFERIES, Ltd., Ipswich, are showing motor lawn mowers.

LEGISLATION FOR FRUIT-GROWERS.—Mr. J. A. PEASE, on behalf of Sir E. STRACHEY, stated, in the House of Commons on March 8, that the President of the Board of Agriculture hopes shortly to introduce legislation by which local authorities would be given power to deal with insects and other destructive pests in their districts in order that fruit-growers might be protected.

DRESDEN HORTICULTURAL EXHIBITION.—The International Horticultural Exhibition to be held at Dresden from May 4 to May 12 is attracting much interest. The usual German fashion of exhibiting plants as in cultivation or growing naturally is always very costly. The German public is not much interested in gardening for the simple love of plants; they require some special attractions. The Rhododendrons and Alpine plants must be shown in the frame of a landscape of the Caucasian mountains, for instance, or the water and bog plants as we find them in the woods, the Orchids and Bromeliads must be arranged on the trees of a Brazilian jungle; a background so built up is very popular, and so are dioramas. This kind of exhibits may seem to a scientific or specialist grower rather superfluous, but it is in conformity with the taste of the German public. Indeed, the horticultural exhibitions of Dresden are really picturesque arrangements, celebrated over all Germany, and amply worth a visit. The same plan was carried out in 1904 at Dusseldorf, where the Rhododendrons were shown in that manner by a Dresden gardener and won many admirers, who until then had not known that Rhododendrons are hardy in the German climate. The aim of these decennial international exhibitions is to show the development and progress of the various horticultural productions: of winter-flowering plants, as Azaleas, Camellias, Rhododendrons, and Irises. In addition to these, that are grown for the markets of the eastern half of the Continent, for the last 10 years Lily of the Valley, the Lilac, forced Roses, and foliage plants (Palms, &c.), for the decorations of rooms and winter gardens, have been largely cultivated. All these plants will be shown in enormous quantities in an exhibition-palace, very well adapted to display them in the style above mentioned. It is a pity indeed that the plants and flowers must be brought together for the short period of one week, but the labour will not be thrown away, as the German, Austrian, Prussian, and other foreign gardeners and plant-lovers are expected to be present in large numbers. The King of Saxony, the traditional patron of these exhibitions, will open it, and it is expected that the Kaiser may come, as he did in 1896, and so secured a very large attendance of the public. A special show of Orchids will be arranged (certainly not on the jungle scheme), including fine varieties and hybrids, and only for a duration of three days (May 4-7). Some of the first Orchid-cultivators of England, Germany, and Belgium will take part in the exhibition. *F. Ledien, Dresden*.

—We note the appearance of the schedules for the various sections of the Dresden Horticultural Exhibition. These classes are as follows:—A, 1, Palms and stove plants; 2, spring flowers and cool greenhouse plants; B, Orchids; C, principles of horticulture; D, floral decorations; E, landscape gardening and buildings; F, water plants; G, fruit trees; H, vegetables; I, forestry, Rose and tree culture; K, bulbs, horticultural products and implements; L, Cacti and other succulents.

THE EFFECTS OF FROST AT ABBOTSBURY.

THE recent severe weather has killed such a number of plants in the sub-tropical gardens here (coast of Dorset) that I am induced to write a few notes on the genera and species which may be of interest and perhaps some use to those who intend planting Australian, South American, and other plants of a tropical and semi-tropical nature in similar localities.

The gardens here are frequently likened to the Garden of Eden by visitors in the summer-time, but had they visited them on Saturday, January 26, when there were 4 inches of snow nearly all over the gardens, and 3 feet in depth in places where it had drifted, the thermometer registering 16° Fahr. of frost all the time, I think their idea of a similitude to the Garden of Eden would have been shattered.

In the spring of 1905 I planted out between 400 and 500 young *Acacias* and *Eucalyptus*, and nearly all of them are killed. The species of *Acacia* killed are as follows:—

<i>A. floribunda.</i>	<i>A. armata.</i>
<i>A. cuneata.</i>	<i>A. falcata.</i>
<i>A. Dietrichiana.</i>	<i>A. myrtifolia.</i>
<i>A. longifolia.</i>	<i>A. rostellifera.</i>
<i>A. microbotrys.</i>	<i>A. saligna.</i>
<i>A. harpophylla.</i>	<i>A. trinervis.</i>
<i>A. ricinifolia.</i>	<i>A. verticillata.</i>
<i>A. eburnea.</i>	

The smaller plants of *Acacia dealbata* are nearly all killed, but, fortunately, the large plants, which were sown in 1896 and are now about 40 to 50 feet in height, are perfectly safe. It has always been considered that *Acacia floribunda* was the hardest species; but I think, without exception, all are killed, even plants up to 20 feet high. *A. melanoxylon* has survived in places; in fact, this has stood much better than *A. floribunda*, although some specimens of *A. melanoxylon* 20 feet high have been quite killed. *A. rostellifera*, *A. verticillata*, *A. Riceana*, *A. extensa*, *A. trinervis*, *A. longifolia* are all killed, and other species have suffered.

The species of *Eucalyptus* which have been killed are as follows:—

<i>E. corynocalyx.</i>	<i>E. maculata.</i>
<i>E. crebra.</i>	<i>E. viminalis.</i>
<i>E. corymbosa.</i>	<i>E. "Fodd Bay."</i>
<i>E. amygdalina.</i>	<i>E. goniocalyx.</i>
<i>E. bicolor.</i>	<i>E. Gunnii.</i>
<i>E. coriacea.</i>	<i>E. leucoxydon.</i>
<i>E. eugenioides.</i>	<i>E. platypus.</i>
<i>E. ficifolia.</i>	<i>E. Risdoni.</i>
<i>E. paniculata.</i>	<i>E. punctata.</i>
<i>E. melliodora</i> (even plants 35 feet high).	<i>E. polyanthemosa.</i>
<i>E. pillularis.</i>	<i>E. rostrata.</i>
<i>E. siderophloia.</i>	<i>E. Stuartiana.</i>

E. Globulus, *E. Gunnii*, *E. urnigera*, *E. coccifera*, and *E. cordata* have survived. The hardest species, in my opinion, are *E. urnigera*, *E. coccifera*, and *E. cordata*.

The Bamboo family has stood very well. The only species killed outright are *Arundinaria Hookerii* and *A. spathiflora*. The following species suffered severely, but, I think, will survive:—*Dendrocalamus Falconerii*, *Bambusa gracilis*, and *D. Decaisneana*.

We have a collection of 17 *Buddleias*, but they all escaped except *B. madagascariensis*, *B. asiatica*, and *B. Columbica*, which are killed outright, *Buddleia auriculata* being injured badly.

The New Zealand Laburnum (*Edwardsia grandiflora* and *E. microphylla*) have suffered much; all the leaves are falling off fast, but the flowers are still safe. The plants have suffered more than they have been known to do previously.

We took great care of all our big plants of *Cordyline australis*, otherwise they would have been killed. Some of the stems are over 20 feet high. We have, however, lost about one dozen plants. *Cordyline atropurpurea*, I think, is quite killed.

There is a good collection of *Senecios* grown here. Species not hardy enough to stand more than an ordinary winter are *Senecio eleagnifolia*, *S. grandiflora*, *S. Forsterii*, and *S. Grayii*.

The following have either suffered severely or have been killed:—*Beschcorneria yuccoides*, *Furcroya longæva*, *Aloe frutescens*, *A. maculata*, *A. ferox*, *Agave ferox*, *A. applanata*, *A. mitriformis*, *A. Mellerii*, and *A. Houletiana*.

The miscellaneous plants that have been killed include *Callistemon styphelioides*, *Melaleuca tomentosa*, *Ehretia serrata* [acuminata], *Guevinia avellana*, *Westringia rosmariniformis*, *Grevillea longifolia*, *Coronilla glauca*, *C. valentina*, and *C. viminalis*, *Olearia argyrophylla*.

Even Bays, Portugal Laurels, Myrtles, *Eugenia*, *Pittosporums*, and *Escallonias* suffered very much, but are not killed outright.

FRUIT REGISTER.

ARD CAIRN RUSSET.

To Mr. Baylor Hartland, of Ard Cairn, Cork, we are indebted for samples of this Apple, received at the end of February. The fruit is about 2½ inches long by 2¼ inches in width, ovoid-conic, truncated and slightly five-angled at the top, with a shallow eye, short funnel-shaped tube, and infolded calyx-segments. Stalk about half-an-inch long, set in a shallow basin. Skin golden-brown, more or less covered with russet. Flesh firm, yellowish-white, with a sweet, rich flavour. In view of St. Patrick's day, our artist has added a few Shamrock leaves.

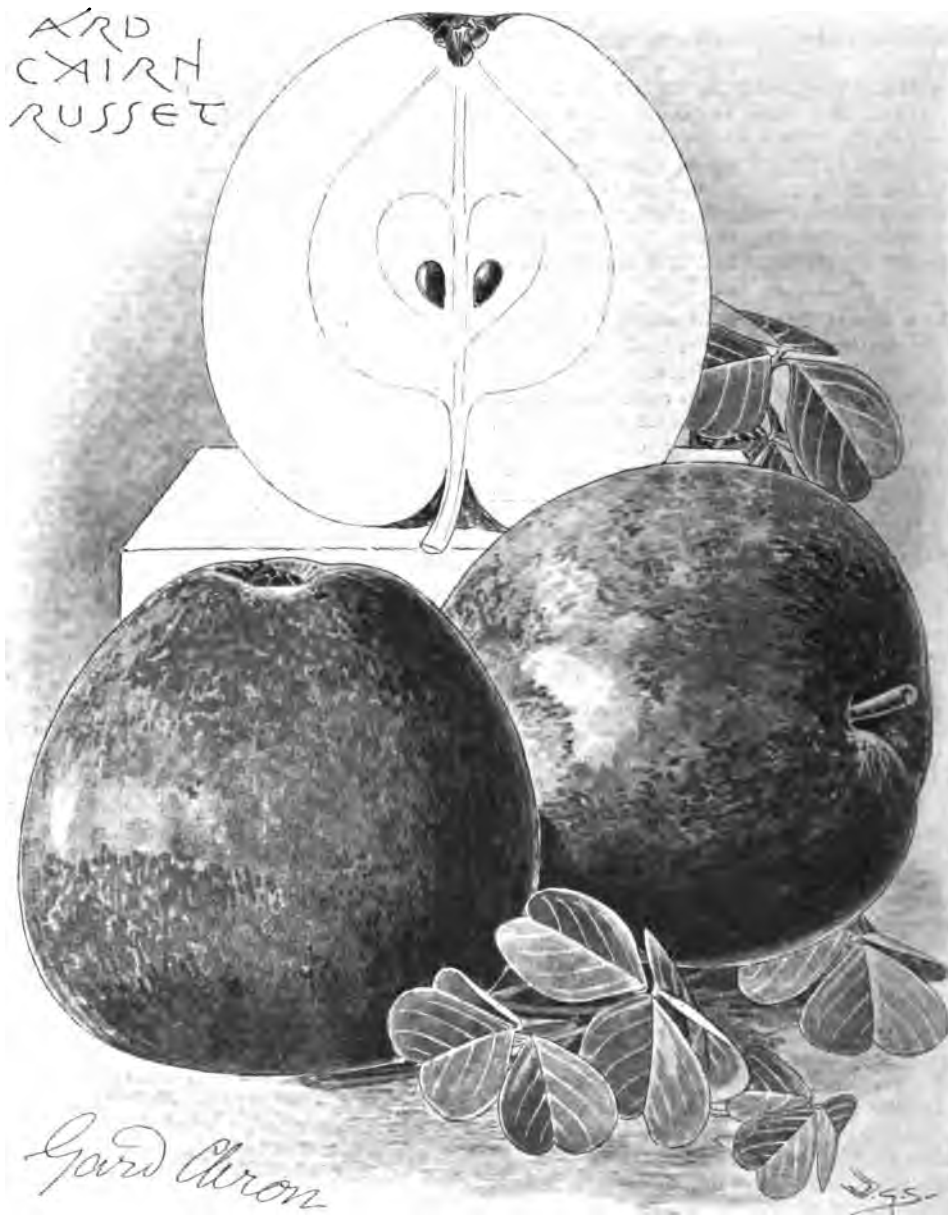


FIG. 77.—ARD CAIRN RUSSET (IRISH) APPLE, ASSOCIATED WITH SHAMROCK.

Altogether, this has been considered the most severe winter for many years, and it has thrown us back a long way. Still, the *Magnolias*, *Himalayan Rhododendrons*, *Camellias*, and *Azaleas* are so full of bloom that there will be a good show, but I grieve very much over those that are killed, as they would have been such good plants with this season's growth. The chief lessons to be learnt is to plant tender things in as sheltered positions as possible.

I shall be glad to answer any question as to the hardness of tropical and sub-tropical plants as grown here. *H. Kempshall*, *Abbotsbury Castle Gardens, Dorsetshire*.

EARLY FLOWERS OF "MALMAISON" CARNATIONS.

At the meeting of the Royal Horticultural Society, on February 16, much interest was evinced in a group of *Souvenir de la Malmaison* Carnations shown by G. F. RAPHAEL, Esq., Porter's Park, Shenley, Hertfordshire (gr. Mr. Albert Grubb). The date of season was specially early for such an exhibit, the quality of which may be judged by an inspection of the illustration at fig. 78.

Mr. Grubb is very successful in the culture of this type of Carnation, and during the past

month has had a display of flowers which was greatly admired by visitors to the garden. The following remarks by Mr. Grubb on various cultural details will therefore be read with interest:—

"Special attention should now be paid to the plants that are in bud, also to the main batch of plants that are now producing their flower spikes. Manure should be applied freely until the buds show colour, but at that stage it should be discontinued altogether. The manure I use most is Bentley's Carnation Manure, and, for a change, manure-water obtained from the soaking of sheep 'droppings' gathered in the summer time under trees in the park, where the sheep go for shade. The 'Malmaisons' are greatly benefited by this latter, cheap manure. The character of the soil has much to do with success or failure. We use the Northampton loam, which is more easily obtained than the scarce

of Westminster is indispensable, being an early variety, and one that will thrive almost anywhere; the flowers are rather small, but will last in good condition for a longer period than any other. Princess of Wales is the variety most grown here, it having a favourite colour, and one of the largest flowers when well grown. I am under the impression that there is more than one variety or strain under this name. I have a house of plants now in bloom; on some plants the flowers are of a deep colour, while others are quite pale. I need hardly say the pale-coloured varieties will not be used for supplying cuttings for propagation. I have not noticed the pale shade so much until this year. In order to obtain early and strong layers, which are necessary for success, plants should be deprived of some of their side-shoots, leaving only three or four to a plant. Old plants should not be layered unless the cultivator is short of stock."

necessary lime is always present, and warmth, both in spring and summer, helps the bulbs to grow and ripen well. Grown in pans, they need but light and somewhat poor soil, and are better treated if turned out of their receptacles to finish their growth in the open border. Early Irises that can be recommended are *I. Heldreichii*, cobalt-coloured, with violet signal patches; *I. Tauri*, a purplish counterpart with an edging of old gold around the blade; the well-known violet-coloured *I. reticulata* and its forms, *histrionides* (Cambridge blue), and *Krelagei* (purple); the hybrids *purpureo-persica* and *Sindpers*, both studies in subtle colouring that well repay inspection; in the former case, rosy-purple is the dominant colour, in the latter one porcelain blue. Other Irises that can be similarly grown are *I. Danfordiae*, a dwarf yellow *reticulata* as regards form; and *I. persica*, whose flowers are palest blue in colour and of exquisite form.



FIG. 78.—EARLY GROUP OF "MALMAISON" CARNATIONS SHOWN AT A MEETING OF THE R.H.S. IN FEBRUARY.

Surrey loam. It is most difficult in some parts to grow 'Malmaisons,' even if loam is purchased. I am glad to say they do fairly well here, and by syringing them occasionally with 'Carvita,' the plants remain free from 'rust' and disease. After this date the grower may venture to keep the plants a little warmer, but it is important at all times of the year to give them plenty of ventilation, and the cooler the plants are kept when resting, the better. I cannot add to or take away anything from the advice given for potting on p. 155 in last week's issue, under the heading of 'Plants under Glass,' which, I think, is very practical—I was glad to see the names mentioned there of some of the best varieties. Maggie Hodgson is one of the finest coloured 'Malmaisons' grown; Duchess

THE EARLIEST SPRING FLOWERS.

QUITE a large number of small-habited, spring-flowering bulbous plants from Asia Minor have become deservedly popular. They help to bridge over an almost flowerless period of the hardy flower garden, linking up the last Christmas Rose with the first Daffodil. Their cultural needs can be pretty fully met in the rock garden, but other ways of using them are suggested by the accompanying figure of a small group grown in pans in a cold frame. Where there is no glass accommodation whatever, these little bulbs may be grown in narrow, warm borders generally to be found close to dwellings. In such borders they may be grown from year to year without preparation; the

Most of these are to be found in the illustration (fig. 79, p. 177). Of Crocuses that can readily be grown in pots or pans, the lavender-coloured *C. Tomassinianus*, the pretty lilac and silvered *C. cyprius*, with deep bronze-purple exterior blotches; *C. chrysanthus*, a small but exquisite yellow; and *C. Sieberi*, a sturdy deep lilac flower that everyone admires, are of the choicest.

There are dozens of others well worth growing in a similar way. Add to these four or five forms of *Cyclamen ibericum* and *C. vernalis* in shades of pink and crimson, Snowdrops, Saxifrages of the *Burseriana* group, and the earliest dwarf *Fritillaries* such as *F. aurea*, *F. armena* and *F. citrina*, and the group becomes representative of the best of the early spring flowers. Readers should appreciate the usefulness and

attractiveness of these little "bulbs" for the jardinière. Grown coolly in pots and pans throughout the winter, they respond to the first day's sunshine, and may be had in flower from the year onwards. Grown in the open, their fragrance is in some measure lost, but in the confined atmosphere of apartments one gets the odour of Violets, Primroses, and other subtle perfumes from practically all the Irises, most of the Crocuses, and from a large percentage of other bulbs that flower with them.

A word of caution. Forcing, as practised with Tulips, Hyacinths, and the rank and file of florists' bulbs, must not be practised with Irises. They grow fast enough without it. Planting should be done not later than October.

LAW NOTES.

RAILWAY RATES.

THOSE who take any active interest in the question of railway rates, and the effect which such rates have upon the trade of the country, are already watching with considerable anxiety the progress through the House of Commons of a small Bill, known as the Railway Contracts Bill, which is likely to come up for second reading at any time on or after the 15th instant. As the Bill is one which affects every reader of the *Gardeners' Chronicle*, it may be useful to explain as shortly as possible the nature of the point involved, especially as there seems to be considerable misconception on the subject at the present time.

The Bill itself merely provides in effect that it shall not be lawful for any railway or canal company to make any condition with respect to receiving, forwarding, or delivering of goods, if the effect of such condition would be to exempt the company from liability for injury to, or loss of, the goods carried where such loss or injury is occasioned by the gross neglect of the company or its servants.

It should be explained that this proposed amendment of the law deals only with conditions customarily inserted by the railway companies in the contracts which they enter into when forwarding goods "at owner's risk." The point does not arise where goods are forwarded at "company's risk," because railway companies in their capacity of common carriers are liable under the Carriers' Act for all risks except those arising from the act of God or the King's enemies, or the inherent vice of the goods (such as a horse which injures itself by vicious kicking), or the inherent tendency of the goods to decay or ignite. But, in the course of time, the companies began to take steps with a view to further limiting their liability as defined above, and the plan hit upon was one whereby the person wishing to forward goods was offered a lower rate for carriage of the goods if sent at "owner's risk" than that which he would have to pay if the goods were forwarded at "company's risk." The trader, being anxious to escape the high rate which the company had legal power to charge when carrying at company's risk, was naturally tempted to accept this offer (though involving signature of a special form of contract necessary to carry this arrangement into effect) an offer on these terms seeming in theory reasonable enough. At the same time, the trader naturally expected that the goods would receive reasonable treatment, even in cases where he signed this special form of contract, but, although the courts have held that these special contracts must be just and reasonable in their conditions, the fact remains that at the present time the rights of the trader have been so whittled down that whatever may be the damage sustained by goods forwarded at his own risk (or in cases where the loss is even a total one) he now finds himself practically unable to recover compensation from the railway except in cases where he is able to perform the almost impossible task of proving wilful misconduct on the part of the company or its servants. In justice to the railway companies, it must be admitted that until recent years when they thought undue hardship had been sustained they paid compensation in many cases where the trader would have been unable to obtain redress by an action at law. Latterly, however, the railway companies have all entered

into an arrangement between themselves in connection with this subject, the practical result of which is that the companies only pay where they can be compelled to do so legally, that is to say, in those cases where the unfortunate trader is actually able to prove wilful misconduct. The object of the Bill now before Parliament is to enable the trader to recover compensation in these cases where the company or its servants have been proved guilty of gross neglect, although not actually guilty of wilful misconduct. It will surely be generally admitted that the demand is neither unreasonable nor unjust.

The Bill contains a further clause to the effect that the railway companies shall not be justified in raising the "owner's risk" rates merely because of the fact that the law is slightly amended by the Bill as above explained.

It may perhaps be asked why, if the trader chooses to accept the lower rate granted where the carriage is at owner's risk, he should complain if the railway company lose, delay, or damage his goods. The answer is that the power of the railway companies has practically grown into that of a dangerous monopoly, and as usual in the case of monopolies, the trader now finds himself impaled on the horns of a dilemma; either he must pay a very high rate for having his goods conveyed at company's risk, or if he pays the more reasonable rate quoted where his goods are carried at his own risk, he must face the danger of their being totally lost or damaged, even when the railway company has been guilty of gross negligence, without the slightest compensation being vouchsafed to him. What is the trader to do? Take, for instance, the following case which is here quoted for the purpose of illustrating the point involved, while admitting for the sake of fairness that it goes somewhat beyond the average. A trader desired to send Tomatos in open sieves from London to Glasgow, and applied for quotation of rates. The rates quoted by the railway company were 100s. per ton if sent at company's risk, and 42s. 6d. per ton if sent at owner's risk, a difference of over 100 per cent. Could any conceivable state of affairs justify such a distinction? If the trader wished to have the goods safely carried he had to face an expenditure of 100s. per ton for railway charges alone. If this was more than the business would bear his only alternative was to have his goods conveyed, it is true at a much lower rate, but under the unpleasant certainty that if from any cause whatever, except the wilful misconduct of the company's servants, the Tomatos were lost or damaged, the entire loss would fall upon him. Even if the damage arose from the gross neglect of the company or its servants there would still be no redress, and it is this anomalous position which the Railway Contracts Bill seeks to remedy.

During the last generation the volume of railway traffic has of course increased to an enormous extent, and one might reasonably expect to find that in the case of railway companies, as with other commercial concerns, the greater the output the lower would be the figures at which rates could be quoted while still maintaining a reasonable margin of profit. But, unfortunately, notwithstanding the increased volume of traffic, railway charges have not decreased in the proportion which one might feel justified in expecting, even after making allowance for the many excuses put forward, and here again little improvement can be looked for without the pressure of public opinion unmistakably expressed.

It will be seen that the matter is one which, although affecting traders to a vast extent, also affects every member of the public who wishes to consign or receive goods through the agency of a railway company, and it is to be hoped that strong efforts will be made to insist on the Bill becoming law as being at least a step towards reform. It is evident that the railway companies desire to fight the Bill, and, in fact, a deputation of railway managers waited on the President of the Board of Trade only a few days ago in order to protest against it. If growers, and the public generally, desire to obtain the reasonable protection afforded by the Bill they should write immediately to the member of Parliament for their division urging him to give the Bill his support, and assuring him of the urgency of the matter from the trade point of view. The railway companies have thought fit to combine in their own interests, and it now

remains to be seen whether the public will be prepared to combine effectively by due effort on their part before it is too late. Readers are aware that the Joint Railway and Parliamentary Committee, of which Mr. George Monro is chairman, are already hard at work on the subject, but the measure of their success will necessarily depend largely upon the amount of public opinion vigorously expressed in their support. *H. Morgan Veitch, Norfolk House, Norfolk Street, Strand.*

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

BEGONIA GLOIRE DE LORRAINE.—In respect to this beautiful Begonia it should be mentioned that if plants are cut back moderately after flowering, and they are then placed in a moist, hot atmosphere, they will, in six or eight weeks' time, almost repeat their former beauty. *J. H., Hanley Park.*

EARLY PEAS AND SUCCESSION.—The names of these are legion but the varieties are not so distinct, and very often what suits one district or one soil will not do on another. For instance, I sowed last season a very early Pea supposed to be 15 inches high, but which went up 5 feet. I have not found that much advantage is gained by sowing very early. There is always something in the shape of a drawback in the weather, either in the early stages or the latter. The earliest Pea with us last season was Carter's Eight Weeks, but the most profitable one was "Lightning," which was but a few hours in front of Springtime, from which we were able to gather abundantly. This Pea matures very quickly, far more so than many others. Early Morn—a first Early Marrow—is a rare good and early Pea, and should be sown in a warm position, when it will prove very remunerative. Daisy still holds good as an excellent second early variety. Commonwealth takes the place of the more known Stratagem, and is the latest relation to that variety, though a good re-selected type of that variety is still in the front. Model Telephone is still a very fine and high-class Pea of delicious flavour. How many different names this class of Pea is sold under! "Quite Content"—which was sent out in small packets last season—proved all that was claimed for it. It is undoubtedly the largest podded Pea ever introduced, and I can fully bear out that statement. It is sure to be extensively sown this season. It requires plenty of room for development and rich cultivation. Exhibition is a famous Pea for all purposes. Dreadnought is a new Pea, and should be sown to succeed Quite Content. Judging by its character last season (a dry one), it is bound to become popular. Michaelmas still retains its position as a good late variety, and one that is very sturdy and of great vigour, and resists mildew to a great extent. I have had that variety really good at Michaelmas, but then, again, soil and situation have much to do with good crops of late Peas. A good selection of that good old Pea, Ne Plus Ultra, is sometimes very difficult to beat as a late variety for flavour and cropping. Sutton's Continuity is an exceptionally good late variety, and the Peas are unique in flavour. I should strongly advise young growers to try several late and early varieties to prove by actual experience which variety does best in their garden, and then hold fast to a good thing. Peas are very often sown too thickly to secure the best results. *W. A. Cook.*

THE JAPANESE LARCH AT GRAVETYE.—Nowhere have I seen the Japanese Larch growing more vigorously than at Gravetye Manor, Mr. Robinson's beautiful estate in Sussex. There, two good breadths of the tree have been planted on different parts of the estate which show well both its ornamental character and rapidity of growth. The warm cinnamon tint of the shoots is quite a remarkable feature of the tree and is only approached by that of a vigorous growing specimen of the deciduous Cypress. The rate of growth is rapid, several of last year's shoots measuring 39 inches in length, and a break planted four years ago is now fully 8 feet high. Should the Japanese Larch thrive in other places as it does at Gravetye its value as a forest tree will be considerable, especially too, as, so far, no disease has appeared. *A. D. Webster.*

A NEW GOOSEBERRY PEST.—As a result of recent work upon the genus of mites known as Eriophyes, of which *E. ribis* (Nalepa), causing "big bud" on Black Currants, is perhaps the most familiar example, I have long held the opinion that many other fruit trees would ultimately be found to possess these mites. Needless to say, wherever they do occur on such plants they are the cause of considerable damage and loss. During the past week I received from an Evesham fruit grower some Gooseberry cuttings on which all the present year's buds appeared dry and shrivelled. The outer leaves were quite dead and the bark in some cases was peeling off in long shreds. I at first suspected a fungus, but no trace of one could be found. I next cut one of the shoots through longitudinally, thinking that possibly some boring larva might be the cause of this shrunken appearance, but nothing was found. As a final resort I next teased a bud, just as one would do to find the Black Currant gall-mite, and I was very much surprised to find a mite of the genus Eriophyes.

bud" in Black Currants. *Walter E. Collinge, The University Department of Economic Zoology, 55, Newhall Street, Birmingham.*

FORCING BY MEANS OF WATER.—Two years ago I noticed in a continental journal the details of forcing by means of hot water, a practice (if I remember correctly) that was initiated in Norway. Last year I gave it a trial, with the result that Lily of the Valley planted afterwards in sand in a forcing pit did remarkably well. The spikes were rather straggly as to time, some being ready to cut much sooner than others. Lilacs were a failure, no doubt because the buds were not so forward as those cut from bushes in warmer summer climates. First and last I have experimented with a great variety of plants, and I would not like to say that immersion in hot water is as valuable an aid to forcing here as it seems to be on the Continent. For some time back we have been furnishing Roses, shoots of flowering Currants, early Spiræa, Nuttallia cerasiformis, and now Almonds.

WISLEY — HANBURY — WILSON.—The announcement of the death of the generous donor of Wisley Gardens to the Royal Horticultural Society—Sir Thomas Hanbury—serves to draw attention to the fact that, so far as I know, there is in the gardens no object which publicly serves to acknowledge the deceased gentleman's splendid gift. Is it too much to ask that now he has gone the Council should erect some fitting memorial, even were it in the form of a pretty drinking fountain, on which might be fixed an inscription detailing the nature of the gift and the goodness of the donor? In some similar way should also be provided some memorial of the originator of the gardens, Mr. G. F. Wilson. Whilst the present generation may know much of these eminent horticulturists their successors may otherwise know little or nothing. Every year the Wisley Garden is showing improvement. No longer is it dreaded as a white elephant, and, if the situation is remote, for a century at least it will be in pure air and in delightful surroundings. *A. D.*

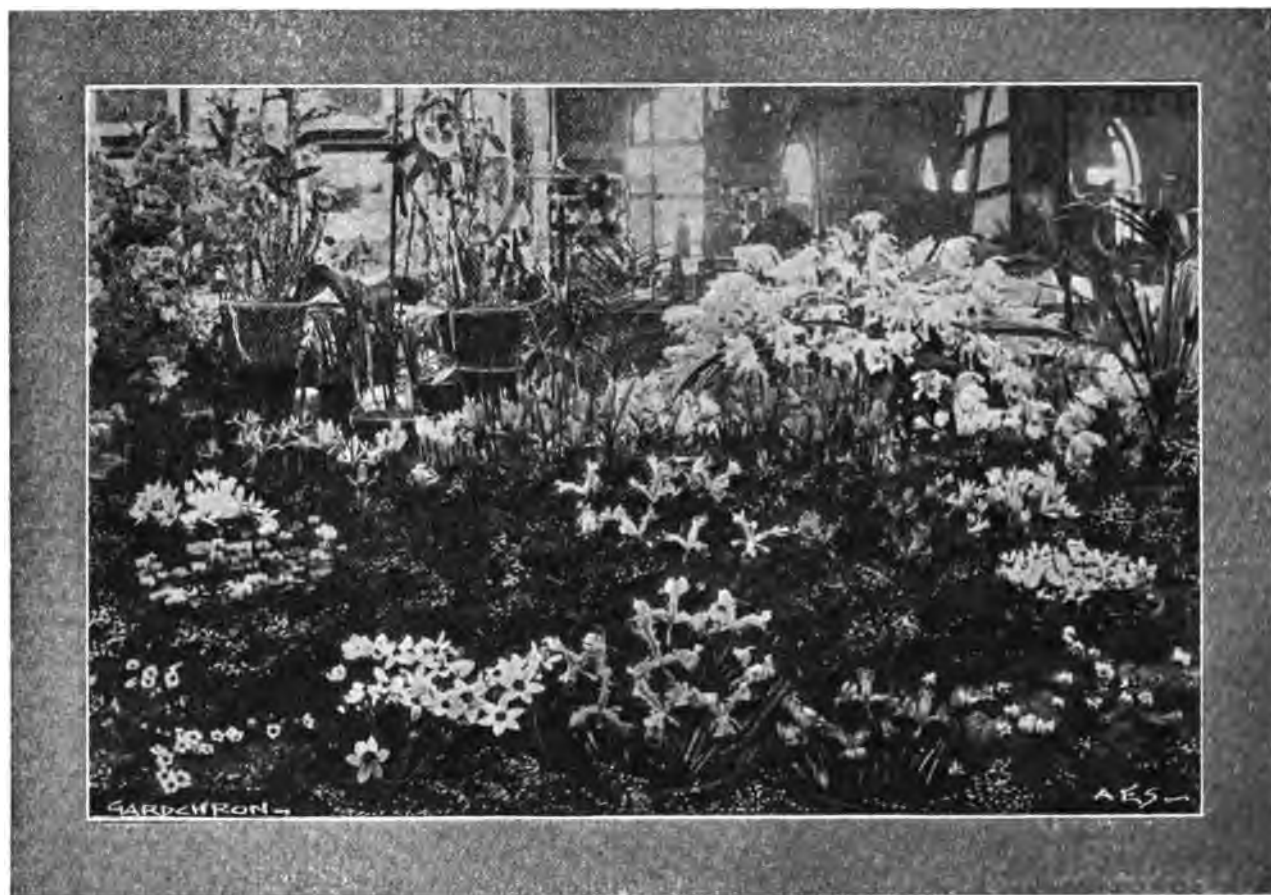


FIG. 79.—SPRING FLOWERS SHOWN BY MESSRS. WALLACE AT THE LAST R.H.S. MEETING
(For text see page 175.)

An examination of other buds showed that practically all were infected. The species, which I think is undoubtedly a new one, is rather longer than *E. ribis*, and so far as I have been able to make out rather stouter in the cephalothoracic region from above below. A full description with figures will later be published of this species, which I propose to name *Eriophyes grossulariæ*. The purpose of the present communication is to draw the attention of all Gooseberry growers to the new wood of their trees, upon which the buds appear to be dead or drying up. Such should be cut off and immediately destroyed by burning. Any such twigs forwarded to my address I shall be pleased to report upon. Whether this species migrates from affected buds to others yet remains to be seen, but I would point out that unlike affected Black Currant buds they are not globular, or distorted at all on the Gooseberry, and that the mite is already in this year's buds, although they have scarcely commenced to unfold. It is sincerely to be hoped that growers will keep a lookout for this pest and check it in the bud, or they may be confronted before many seasons are past with a disease as bad or perhaps worse than "big

Prunus Pissardii, *P. triloba*, *Mespilus canadensis*, &c., are available. The treatment of these is very simple. After cutting, merely place the shoots in water in a hot stove, and in a few days the buds begin to show colour, and in about ten are available for vase furnishing. This kind of forcing treatment does not shorten the life of the flowers, which last a really long time in the house. The beauty of some is enhanced, *Prunus Pissardii*, for instance, being very lovely, and the white-flowering Currant is peculiarly sweet. *Deutzias* force exceedingly well, but hardy Azaleas and *Rhododendrons* do not submit to be forced in this way. *Choisyas*, though well forward, fail to respond, and unless it be *Syringa rothomagensis*, none of the Lilacs is satisfactory. The value of cutting the buds of bulbous plants and forcing them into flower is known to market growers, but I am not sure that gardeners as a rule use this means to any great extent. The custom of cutting branches and shoots of trees and shrubs and forcing them rapidly into flower ought to appeal in a special manner to gardeners, because it places at their disposal a vast amount of first-rate material which otherwise is practically worthless. *R. P. B.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

MARCH 5.—*Present:* Dr. M. T. Masters, F.R.S. (in the chair); Prof. G. Henslow, Messrs. G. Massee, E. M. Holmes, J. W. Odell, J. Douglas, E. A. Bowles, A. Worsley, R. H. Curtis, F. J. Baker, J. T. Bennett-Poë, C. T. Drury, W. C. Worsdell, A. W. Sutton, G. S. Saunders, H. T. Güssow, and F. J. Chittenden (hon. sec.).

Potato: species and varieties.—Mr. A. W. SUTTON showed an interesting series of Potato plants and tubers as follows:—

1. Plant of *Solanum Commersoni* ("the Potato of Uruguay") belonging to the same stock as seen by the Committee at Reading last July. The flowers of this species are white and sweet-scented, while the fruit is cordiform.

2. Three plants grown from tubers received this winter direct from Uruguay, the tubers being collected from plants growing in a per-

fectly wild state. The collector states that there are two wild types in Uruguay, one bearing white flowers, the other violet flowers.

3. Tubers just received, supposed to be of the same species as the last, bearing violet flowers, but found in another district at a great distance from the last. The tubers were of a considerable size, some measuring over 2 in. in length by 1½ in. across. It will be interesting to notice later on (a) whether the last two are one and the same species, and (b) what relation, if any, there may be between these last two and the type *Solanum Commersoni*, now so well known and recognised. Possibly this violet-flowered Uruguay Potato may prove to be an unknown species.

4. Two plants of *Solanum Maglia* grown from single eyes.

5. One plant of *Solanum Commersoni* Violet (Labergerie), and one of the Blue Giant Potato (Paulsen).

Numbers 4 and 5 were grown from single eyes (along with a large number of others) under the same treatment under glass, in order to test the assertion of Labergerie that a greater tendency to "mutation" is seen when single eyes are removed from a Potato tuber and submitted to a system of intense culture. None of the plants under this treatment at present show any tendency to mutate.

Mr. SUTTON kindly promised to bring these again before the committee when growth had proceeded further.

Intumescence in Viburnum.—Mr. A. E. BOWLES showed some shoots of *Viburnum Tinus* var. upon which small blisters were developed, which later grew larger until corky growths of considerable size were developed. These were recognised as similar to growths described by Dr. Sorauer under the name of "intumescences" arising from over-turgidity of the tissues, and similar in origin to the warts on Vine leaves, &c.

Curiously-coloured seeds.—Mr. BOWLES also showed seeds of *Ravenala madagascariensis*, the Traveller's Tree, and of *Trichilia indica*. The seeds of the former are of a blue-green colour, and have a metallic lustre, being similar in form and appearance to some of the tropical *Buprestidae*, and the latter red and black, mocking in appearance some of the *Coccinellidae*. The marked likeness to these beetles was thought to be possibly connected with the distribution of the seeds by birds, who might be deceived into carrying them some distance before they found their mistake.

Fungus on Oak.—Mr. DOUGLAS showed dead branches from Oak trees in the neighbourhood of Great Bookham covered with a parasitic fungus. Mr. DOUGLAS said that large numbers of Oak branches were being killed by the fungus.

Malformed Cypripedium.—Mr. DOUGLAS also drew attention to a flower of *Cypripedium Dayanum*, in which the dorsal and one of the lateral sepals were coherent, showing a normal flower for comparison with it.

Malformed Cyclamen.—Dr. MASTERS showed a malformed *Cyclamen* flower sent by Mr. Pettigrew, which had an adventitious bud in the axil of one of the sepals, a not uncommon malformation in flowers of the *Cyclamen*.

Lenticels in Laburnum.—Prof. HENSLOW showed a piece of the bark of *Laburnum*, and drew attention to the enormous number of lenticels present in that plant, particularly in the inner bark.

Cabbage in Patagonia.—He also showed a specimen of *Brassica oleracea* collected by Chas. Darwin at Port Desire in Patagonia when on his memorable journey, and others collected on the Kentish coast of the same species. It would be interesting to know how that species came to be growing in Patagonia so long ago.

Cotyledon macrantha (Berger).—A specimen of this fine plant shown by Sir Trevor Lawrence was discussed, and Dr. MASTERS promised to examine it and report further upon it at the next meeting.

Diseased Gladiolus corms.—Some diseased *Gladiolus* corms of the variety *Princeps*, imported from America in 1905, having the interior partly eaten away and so injured that after lifting the corms rot completely away, were received. Mr. Gussow reported that he found they were attacked by the fungus *Botrytis para-*

sitica, a common fungus on certain bulbous plants. The flies that had been noticed in the corms had evidently been attracted by the decaying tissues and were feeding upon those.

WINTER-FLOWERING CARNATION.

MARCH 13.—The second exhibition of the above society was held on this date in the Royal Botanic Gardens, Regent's Park. The exhibition was favoured by beautiful weather, and the attendance was satisfactory, although not over large. Several meritorious non-competitive exhibits added to the attractions of the show, the most noteworthy being a beautiful display that contained not a few seedlings of merit and notably an unnamed yellow variety, staged by Mr. BURNETT, Guernsey. Only one novelty was submitted to the Floral Committee, and this was an improved form of the well-known White Lawson, and it was granted a Certificate. The amateurs' classes were very poorly represented. The Guernsey exhibitors were remarkably successful.

The class for a collection of Carnation flowers, occupying a table space measuring 10 feet by 4 feet, and interspersed with suitable decorative plants or foliage, was represented by only one exhibit. This was staged by Mr. S. MORTIMER, Rowledge, Farnham, Surrey, who utilised tall glass vases at the back to display the varieties *Enchantress*, *Harry Fenn* (crimson), *Norway* (white), *Nelson Fisher*, *Victory* (scarlet), *Harlowarden*, &c., and smaller vases at the front, with small Ferns intermingled. This exhibit was awarded the 1st prize.

COLOUR CLASSES.

Classes were provided for varieties of white, blush or light pink, deep pink or rose, crimson, scarlet, and any other colour than those mentioned, or fancy, respectively. In each instance separate prizes were offered for a collection of 36 blooms, and for 18 blooms. Competitors were allowed to compete in both sections provided they staged different varieties.

White.—In the larger class for 36 blooms, the best variety was *White Perfection*, shown by Messrs. DODD & LANCASHIRE, Victoria Nurseries, Guernsey. Some of these blooms measured 5 inches across, and the petals were of remarkable purity and of great substance. The 2nd prize went to Mr. DUTTON's *White Lawson Improved*.

In the smaller class for 18 blooms, the variety *Lady Bountiful* shown by Mr. S. MORTIMER, Rowledge, Farnham, was placed 1st; and the same variety secured the 2nd prize.

Blush or light pink.—Four exhibits were displayed in the larger class, three of the variety *Enchantress*, the other being Mr. H. BURNETT's beautiful flower named after Mrs. H. Burnett, a variety deeper in colour than the well-known *Enchantress* and with less crimped petals. This secured the 1st prize, and another Guernsey firm, Messrs. DODD & LANCASHIRE, were awarded the 2nd prize.

Mr. H. BURNETT also won in the smaller class with magnificent specimens of *Enchantress*.

Deep pink or rose.—Three exhibits of the bright rose-coloured Mrs. T. W. Lawson were seen in the 36 class, Messrs. DODD & LANCASHIRE having the premier vase, and they were followed by Mr. DUTTON.

Messrs. B. & V. HAIG, Castle Hill, Maidenhead, won in the smaller class with the same variety.

Crimson.—Harlowarden and President were the representatives of this shade, the 1st prize going to the former variety, the successful exhibitor being Mr. C. ENGELMAN, Saffron Walden. Messrs. DODD & LANCASHIRE 2nd with President.

In the smaller class Harlowarden again won, and President was again 2nd. These were shown by Messrs. MORTIMER and DUTTON respectively.

Scarlet.—Among three exhibits in the larger class the best was a vase of *Robert Craig* shown by Messrs. DODD & LANCASHIRE. This was a splendid exhibit, the flowers were of magnificent colour, and very large. Mr. ENGELMAN followed with the same variety. Three growers contested in this class, the other variety being *Christmas Eve*.

In the class for 18 flowers of this colour, Mr. DUTTON secured the premier place.

Any other colour or fancy.—Prosperity, a variety of somewhat ragged appearance, having

petals blotched with pink on a white ground, was the only exhibit in the larger class, and this was given the 2nd prize. Mr. MORTIMER secured the 1st prize in the class for 18 blooms with Mrs. M. A. Patten, an American variety of large size, streaked with claret on white.

DECORATIVE CLASSES.

The best vase of Carnations, arranged for decorative effect with any foliage allowed, was staged by Mr. BURNETT, his variety being Mrs. H. Burnett. Quality of flowers was the chief consideration in making the award. Messrs. FELTON & SONS, florists, Hanover Square, London, W., were 2nd with the variety *Fair Maid*.

The last-named firm was awarded the 1st prize for a basket of Carnations, having the beautiful *Scarlet Britannia* in a basket with very tall handles that were decorated with the flower to the top.

NON-COMPETITIVE EXHIBITS.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, staged a very large group of Carnations, and a miscellaneous collection of greenhouse flowering plants. (Gold Medal.)

Mr. A. SMITH, Enfield Highway, London, N., showed a fine batch of his scarlet seedling *Britannia*. (Gold Medal.)

Mr. E. ENGELMAN, Saffron Walden, Essex, displayed vases of cut Carnations of excellent quality. (Large Silver-Gilt Medal.)

The group exhibited by Mr. H. BURNETT, St. Margaret's Vineries, Guernsey, was an object of great interest. (Large Gold Medal.)

Messrs. W. CUTBUSH & SONS, Highgate, London, N., put up a very pleasing group of Carnations. (Large Silver Medal.)

Messrs. T. S. WARE, LTD., Ware's Nursery, Feltham, showed Carnations. (Silver-Gilt Medal.)

Messrs. WM. PAUL & SON, Waltham Cross, Herts, displayed a fine group of Camellias in the large conservatory. (Gold Medal.)

Mr. W. E. WALLACE, Eaton Bray, Dunstable, showed *Roses Liberty* and *Richmond*.

Messrs. FELTON & SONS, Hanover Square, London, W., displayed floral devices, principally of Carnations. (Large Silver-Gilt Medal.)

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

MARCH 11.—The annual meeting was held on this date. Mr. Charles H. Curtis presided and moved the adoption of the report, which was carried. Mr. W. Collins was unanimously re-elected secretary. On the proposition of Mr. Wm. Marshall, V.M.H., new trustees were elected under the new rules, namely, Messrs. Riley Scott, James Hudson, V.M.H., and Chas. H. Curtis. There were four retiring members of committee, Messrs. Harding, Woods, Thomson, and Curtis; the latter two gentlemen were translated, and out of six nominations the following were elected: Messrs. Harding, Woods, J. Harrison Dick, and Wilson. Mr. Curtis was re-elected chairman of committee, and Mr. T. Winter as vice-chairman.

ROYAL HORTICULTURAL SOCIETY.—At a meeting of the committees to be held on Tuesday next, a lecture on horticulture in British Guiana will be delivered by Mr. J. A. BARBOUR JAMES, at 3 p.m.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 13.

Variable temperatures.—On the warmest day the temperature in the thermometer screen rose to 67°, which is the highest reading as yet this year, and on the coldest night the thermometer exposed on the lawn registered 15° of frost. The ground temperatures have varied, and are now slightly below a reasonable temperature, both at 1 and 2 feet deep. Rain, hail, or snow fell on five days, but to the total depth of only half an inch. Small quantities of rain water have percolated each day through the bare soil gauge. The sun shone on an average for 8½ hours a day, which is about the average record for the middle of March. The winds were, as a rule, high, but in no hour did the mean velocity exceed 18 miles—direction W.N.W. There was about a seasonable amount of moisture in the air at 3 o'clock in the afternoon. A selected patch of yellow *Crocuses* in my garden first showed an open flower on the 10th, which is 15 days later than its average date in the previous 20 years, and later than in any of those years since 1896, or for 12 years. E. N., Berkhamsted, March 13, 1907.

MARKETS.

COVENT GARDEN, March 13.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—ED.]

Cut Flowers, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Azalea Fielderi, per dozen bunches ... 2 6-40	Marguerites, yellow, doz. bchs. ... 2 6-30
— mollis, p. bcn. ... 1 0-16	Mignonette, per doz. bunches ... 2 0-30
Anemones, per doz. bunches ... 3 0-40	Narcissus, paper white, per doz. bunches ... 1 0-20
Bouvardia, per doz. bunches ... 4 0-60	— gloriosus ... 2 0-30
Calla theopica, p. dozen ... 2 0-30	— poeticus, per dozen bunches ... 2 0-30
— anellias, white, per dozen ... 2 0-30	— Soleil d'Or, per dozen bunches ... 1 6-20
Carnations, per dozen blooms, best American various ... 2 6-50	Odonoglossum crispum, per dozen blooms ... 2 6-30
— smaller, per doz. bunches ... 12 0-18 0	Pancratium, doz. fls. ... 3 0-40
Cattleyas, per doz. blooms ... 12 0-15 0	Pelargonium, show, doz. bchs. ... 6 0-90
Christmas Roses, doz. blooms ... 0 9-10	— Zonal, double scarlet ... 4 0-60
Daffodils, doz. bchs. ... 3 0-60	Poinsettias, per doz. ... 8 0-12 0
Dendrobium, per doz. blooms ... 2 0-30	Primula (double white), doz. bchs. ... 6 0-90
Eucharis grandiflora, per doz. blooms ... 2 0-30	Ranunculus, per dozen bunches ... 6 0-90
Euphorbia jacquiniiflora, per bunch ... 0 9-10	Roses, 12 blooms, Niphetos ... 2 0-40
Gardenias, per doz. blooms ... 6 0-80	— Bridesmaid ... 4 0-60
Heather, white, pr. doz. bunches ... 8 0-60	— C. Testout ... 4 0-60
Hyacinth (Roman), p. doz. bunches ... 3 0-50	— General Jacqueminot ... 4 0-60
Lilac, white, p. bch. ... 8 6-40	— Kaiserin A. Victoria ... 4 0-80
Lilium auratum ... 2 0-30	— C. Mermet ... 3 0-60
— lancifolium, rubrum and album ... 2 0-26	— Liberty ... 6 0-80
— longifolium ... 2 6-36	— Mad. Chateaufort ... 4 0-80
Lily of the Valley, p. doz. bunches ... 6 0-90	Snowdrops, per doz. bunches ... 1 0-20
— extra quality ... 12 0-18 0	Stephanotis, per dozen trusses ... 4 0-60
Marguerites, white, p. doz. bunches ... 3 0-40	Tuberose, per doz. blooms ... 0 4-06
	Tulips, doz. bchs. ... 5 0-80
	— Special varieties ... 12 0-18 0
	Violets, doz. bchs. ... 1 6-30
	— Parma, p. bch. ... 2 0-40

Cut Foliage, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Adiantum cuneatum, per dozen bunches ... 4 0-60	Galax leaves, per dozen bunches ... 2 0-26
Asparagus plumosus, long trails, per doz. bunch ... 6 0-90	Hardy foliage (various), per dozen bunches ... 3 0-90
— medium, bunch ... 1 6-20	Ivy-leaves, bronze long trails per bunch ... 1 6-30
— Sprengeri ... 0 6-10	— short green, doz. bunches ... 2 0-80
Berberis, per doz. bunches ... 2 6-30	Moss, per gross ... 4 0-50
Croton leaves, bch. ... 1 0-16	Myrtle (English), small-leaved, doz. bunches ... 4 0-60
Cycas leaves, each ... 1 6-20	— French, dozen bunches ... 1 0-16
Fern, English, per dozen bunches ... 2 0-30	Smilax, p. doz. trails ... 2 0-30
— French, dozen bunches ... 2 0-40	

Plants in Pots, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Acacias, per dozen ... 18 0-30 0	Erica melanthera, per dozen ... 9 0-18 0
Ampelopsis Veitchii, per dozen ... 6 0-80	— Wilmoreana, p. dozen ... 12 0-18 0
Aralia Sieboldi, per dozen ... 4 0-60	— persoluta alba ... 24 0-30 0
— larger ... 9 0-12 0	Euonymus, per doz. Ferns, in thumbs, per 100 ... 7 0-10 0
Araucaria excelsa, per dozen ... 12 0-30 0	— in small and large 60's ... 16 0-25 0
Aspidistras, green, per dozen ... 18 0-30 0	— in 48's, per doz. ... 4 0-10 0
— variegated, doz. ... 30 0-42 0	— in 32's, per doz. ... 10 0-18 0
Asparagus plumosus nanus, doz. ... 9 0-12 0	Ficus elastica, doz. ... 9 0-12 0
— Sprengeri, doz. ... 9 0-12 0	— repens, per doz. ... 4 0-60
— tenuissimus, per dozen ... 9 0-12 0	Genistas, per doz. ... 8 0-10 0
Azalea (Indica vars.), per doz. ... 24 0-36 0	Hyacinths, per doz. ... 9 0-12 0
— mollis, each ... 3 6-10 6	Kentia Belmoreana, per dozen ... 12 0-18 0
Begonia Gloire de Lorraine, p. doz. ... 12 0-18 0	— Fosteriana, doz. ... 12 0-21 0
— Turnford Hall, per dozen ... 12 0-18 0	Latania borbonica, per dozen ... 12 0-18 0
Boronia megastigma, per doz. ... 12 0-30 0	Lilac, each ... 4 0-10 0
Callas, per doz. ... 9 0-13 0	Lilium longiflorum, per doz. ... 18 0-30 0
Cinerarias, per doz. ... 5 0-9 0	— lancifolium, per dozen ... 18 0-24 0
Clematis, per doz. ... 8 0-9 0	Lily of the Valley, per dozen ... 18 0-30 0
— in flower ... 12 0-18 0	Marguerites, white, per dozen ... 6 0-90
Cocos Weddelliana, per dozen ... 9 0-18 0	Mignonette, p. doz. ... 6 0-90
Croton, per dozen ... 12 0-30 0	Orange trees in fruit, each ... 3 6-50
Cyclamen, per doz. ... 9 0-12 0	Primulas, per doz. ... 3 0-40
Cyperus alternifolius, dozen ... 4 0-50	Selaginella, dozen ... 4 0-60
— laxus, per doz. ... 4 0-50	Solanum capsicastrum, per doz. ... 8 0-12 0
Daffodils, per doz. ... 6 0-90	Spiraea japonica, doz. ... 9 0-15 0
Dracenas, per doz. ... 9 0-24 0	

Fruit: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Apples, per barrel, Nova Scotian ... 19 0-22 0	Grapes (Cape), box ... 9 0-15 0
— Fallwaters ... 19 0-22 0	— English, Alicante, per lb. ... 2 0-36
— Russets ... 18 0-18 0	— Gros Colmar, per lb. ... 1 9-36
— Greenings ... 15 0-16 0	— Almerias, per dozen lbs. ... 7 0-10 0
— Starks ... 15 0-16 0	Lemons: Messina, case ... 10 6-16 0
— Baldwins ... 20 0-21 0	— Lyches, per box ... 1 0-12
— Blenheims ... 26 0-28 0	Mandarines, boxes ... 1 0-13
— Ribbons ... 26 0-28 0	— Palermos, 100's, box ... 3 6-60
— King of the Pippins ... 23 0-24 0	Nectarines (Cape) ... 10 0-12 0
— Canadian, per barrel ... 23 0-26 0	Nuts, Cobnuts, per doz. lb. ... 6 0-66
— Russets ... 23 0-26 0	— Almonds, bags 54 0 —
— Greenings ... 20 0-22 0	— Brazils, new, per cwt. ... 65 0 —
— Ben Davis ... 17 0-18 0	— Barcelona, bag 82 6 —
— Baldwins ... 18 0-19 0	— Cocoa nuts, 100 ... 10 6-18 6
— U.S.A., Newtown, per barrel ... 25 0-30 0	— Italian bags ... 11 0-18 0
— Newtown Pippins, per case ... 10 6-16 0	Oranges, per case: Valencia ... 10 0-30 0
Bananas, bunch: West Indian, red ... 8 0-10 0	— Jamaica ... 10 0-11 6
— No. 1 ... 6 6-7 6	— Navels ... 9 0-11 0
— No. 2 ... 5 6-6 0	— Jaffa ... 9 0-12 0
— Extra ... 8 0-10 0	— Seville Bitters, 200's, boxes ... 10 0 —
— Giants ... 9 0-18 0	Peaches (Cape) ... 10 0-20 0
— Jamaica ... 4 6-6 0	Pears (Californian), per case ... 10 0-11 0
— Loose, per doz. ... 0 9-18	— Cape, box ... 4 0-80
Cranberries, per case ... 10 0-11 0	Pineapples, each ... 2 0-46
Custard Apples, p. dozen ... 4 0-60	Plums (Cape), case ... 3 0-60
Dates (Lunis), doz. boxes ... 4 0 —	Strawberries (English), per lb. ... 6 0-12 0
Grape Fruit, case ... 11 0-18 0	

Vegetables: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
Artichokes (French), per dozen ... 2 6-30	Mint, p. doz. bunches ... 6 0 —
— English, bush. ... 1 0-13	Mushrooms (house), per lb. ... 0 10-10
— bags ... 3 6 —	— Buttons, per lb. ... 1 0 —
Asparagus, Sprue French, bunch ... 0 9-10	Mustard and Cress, per dozen pun. ... 1 0-16
— French Giant, per bundle ... 25 0-30 0	Onions (Valencia), case ... 7 6-80
— Paris Green, bundle ... 4 6-50	— picking, per bushel ... 2 0-26
Beans (French), packet ... 1 6 —	— French, bag ... 2 6 —
— Jersey, per lb. ... 1 0-20	— Dutch, bag ... 4 0-46
— Haricots, pr. bx. ... 1 0 —	— English, bag ... 4 6 —
— Maletira, per basket ... 6 0-66	Peas (French), per packet ... 0 5-06
— Niger, p. bask. ... 4 6 —	— French, p. pad ... 6 0 —
Beetroot, bushel ... 1 3-16	Parsley, 12 bunches ... 2 0 —
Brussels, per bushel ... 1 6-20	— 1 bushel ... 2 0-26
Cabbage Greens, bag ... 2 6-30	Parsnips, per bush. ... 1 3 —
— red, per dozen ... 2 0 —	— per bag ... 2 6 —
Carrots, French pad ... 3 0 —	Potatoes (French), crates, per lb. ... 0 9-08
— washed ... 9 0 —	— Canary, cwt. ... 10 0-18 0
— washed ... 2 6-20	Radishes (French), per dozen ... 1 9-20
Cauliflowers, p. ally ... 6 0-80	Rhubarb (English), per dozen ... 1 0-12
— Italian, basket ... 2 6-36	Salsify, p. doz. bds. ... 3 6 —
Celeriac, per doz. ... 2 0-26	Savoy, per mat (holding about 30 to 40) ... 2 6-30
Celery, p. doz. bds. ... 6 0-100	Seakale, doz. pts. ... 12 0-14 0
Chicory, per lb. ... 0 4-05	Spinach (French), per crate ... 3 6 —
Chow Chow, p. doz. ... 3 0 —	Tomatoes: Canary, per bundle ... 10 0-14 0
Cucumbers, p. doz. ... 4 0-80	— Turnips, per cwt. ... 3 6-40
Endive, per dozen ... 1 9-26	— bags ... 3 0 —
Horseradish, foreign, doz. bnds. ... 12 0-13 0	— washed, cwt. ... 3 6 —
Leeks, 12 bundles ... 1 6-20	Watercress, per doz. bunches ... 0 4-06
Lettuces (French), per dozen ... 1 6-20	
— French, Cos, per dozen ... 3 0-50	

REMARKS.—West Indian Bananas are still scarce. Californian Oranges are arriving in larger quantities, consequently prices are lower. There are large supplies of English forced Rhubarb on the market this week. P. L., Covent Garden, Wednesday, March 13, 1907.

POTATOES. Bedford, 65s. to 80s.; Blacklands, 65s. to 75s.; Lincolns, 70s. to 95s.; Yorks, 80s. to 100s.; Dunbars, 90s. to 120s.; Tennifer, 10s. to 12s. cwt. Trade is about normal for the time of year. W. J. C. & S., Covent Garden, March 13, 1907.

COVENT GARDEN FLOWER MARKET.

Trade has brightened a little for some things, but generally business is very quiet. Flowering plants are now of better quality, especially Genistas and Cinerarias, but the latter plants have depreciated in value, for they are now plentifully arriving from several of the best growers. Cyclamen are also abundant, and though well flowered, they do not make good prices. Callas in pots are seen in fine condition, but there is little demand for them just now. Best Lilliums in pots are not abundant, and most of the plants seen are rather tall. The flowers of L. rubrum are of a pale colour. Lily of the Valley is remarkably fine in pots, and Messrs. Rochford and Sons are sending pretty specimens in zinc-lined baskets. Begonia Gloire de Lorraine in hanging baskets are also very pretty. These Begonias in pots are scarcely as good as they were earlier in the season. Daffodils in pots are very good; these plants are now grown more naturally and without so much heat as when they were first placed on the market. Indian Azaleas are now at their best, and beautifully flowered plants are seen, but supplies are excessive, and it is difficult to clear stocks even at reduced prices. Erica Wilmoreana is very fine from several growers, but the variety Superba from Mr. Sweet is specially worthy of note. Persoluta alba is also remarkably good. Acacia Drummondii and A. ovata are seen in well-flowered plants. Boronia megastigma is also now in the best condition; the yellow variety is very pretty. Marguerites are plentiful. Ferns are well supplied. In Palms there are some clean, healthy young plants in 6-size pots, which are sold cheaply. Best plants of Aralia Sieboldi in various sizes sell fairly well, but some have very tender young leaves. Mignonette was noticed, but it was not of high quality.

CUT FLOWERS.

This morning (Wednesday) I find there is a great drop in the cut flower trade, and the above price list must not be taken as absolute in all cases, for one of the leading salesmen informed me that he was glad to accept any offers to clear his consignment. Daffodils are the leading feature, and these have dropped considerably in prices; very fine samples of N. Horsfieldi can be purchased at 3s. to 4s. per dozen bunches, and the variety Henry Irving could be obtained for less. N. Emperor from some English growers is very fine. The importations from the Channel and Sicily Islands and other outside sources depreciate the prices of English grown flowers, which are certainly the best. All Dutch bulbs are abundant; some of the best double Tulips keep up in price, but "singles" are very cheap. Roses are more plentiful, and very fine blooms of Caroline Testout can be had at about 4s. per dozen. The red varieties are also much cheaper: these include Liberty, General Jacqueminot, and Richmond, the last-named commanding the best prices. Carnations are well supplied; best blooms are valuable, but the majority are cheap, and I noted this morning that many were unsold. Lilliums are more plentiful, especially L. lancifolium and L. longifolium, which are cheaper. Callas were never more abundant. A. H., Covent Garden, Wednesday, March 13, 1907.

DEBATING SOCIETIES.

DEVON AND EXETER GARDENERS.—At a recent meeting of this association Mr. Andrew Hope, Exeter, read a paper on "Hardy and Half Hardy Annuals." He advocated the digging of the ground in December or January, and leaving it rough to benefit by the rain, frost, and air. Old rotten manure from the stable, cowshed, or pigery was suitable. Great stress was laid upon sowing thinly, as many beds of annuals were rendered spindly, weak, and, in fact, ruined from over-thick sowing. This applied especially to such subjects as Shirley Poppies, Mignonette, Nasturtiums, and Sweet Peas. Among the annuals recommended were Cosmos, which should be sown in February under glass, Coreopsis, Salpiglossis, Hunnemannia, Gaura, Godetia, the annual Wallflowers, Shirley Poppies, French and African Marigolds, and Tom Thumb Antirrhinums. One of the finest and showiest of annuals was Salvia splendens "Lord Fauntleroy." Among the dwarf growing annuals suitable for the front of borders or for small clumps by themselves were Nasturtiums Lilliput and Queen of Tom Thumbs, Phlox Drummondii nana compacta, Alyssum saxatile compactum, Phacelia campanularia, Marigold—Star of the Legion of Honour, Bismarck Mignonette, the Nemesis, and Diascia Barbara. Ricinus, Perilla, and Gypsophila elegans were recommended, the former as a foil to lighter colours and the latter for arranging with Sweet Peas and other flowers. Mr. Sidney Baker, of Wear House Gardens, presided, and there was a large attendance of the members.

CHESTER PAXTON.—Hardy fruit culture was the subject of discussion at the meeting of the above society, held on Saturday, March 1. Mr. J. Riddell, of Messrs. Dickson's, Ltd., introduced the subject and gave valuable hints as to the best methods of planting, the necessary artificial manures for finishing and colouring Apples, Pears, &c. In advocating "ringing" or "barking" of Apple and Pear trees as a partial substitute for root pruning the lecturer was out of sympathy with the opinion of the majority of his audience. An interesting discussion followed.

READING AND DISTRICT GARDENERS.—Two meetings in connection with this Association have been held during February. The first took place in the club room on the 11th, when Mr. H. Wynn, The Gardens, East Thorpe, gave a paper on "Some Useful Winter-Flowering Plants." Of the many useful flowering plants for winter Mr. Wynn elected to deal with three only, viz., Gloire de Lorraine Begonia, Cyclamen and Cineraria. A good discussion followed. On the 25th the members assembled in the Abbey Hall to hear Mr. F. B. Parfitt, of Elmcott, Caversham, relate, "How I Started My Fruit Plantation." The lecturer during the recent dry summer used no fewer than 100 loads of manure for mulching purposes, and 750 tons of water for keeping his trees in good growing condition, a statement that surprised many of his audience. A feature of the meeting was a display of 52 distinct varieties of Apples, made by Mr. T. J. Powell, gardener to Mrs. Noble, of Park Place, Henley-on-Thames.

SALISBURY AND DISTRICT GARDENERS.—Although this society was started as recently as the beginning of October last it has 180 members, and its weekly meetings are well attended. On February 27 a large audience listened to a lecture delivered by Mr. John Smith, of Messrs. Keynes, Williams & Co., subject: "How Plants Live." The lecturer was assisted by a lime-light lantern and slides. A short discussion followed. E. R.

DORCHESTER GARDENERS.—A special meeting of the above society was held at Ermington House on Wednesday, February 27. A lecture, illustrated by lantern slides, on "Primula sinensis," was given by Mr. H. G. Cox, hon. sec. of the Reading Gardeners' Society. The President (Captain R. Dymond) was in the chair. Mr. Cox traced the development of this flower from the time it was introduced into this country from China in 1819 until the present time. The lecturer also described and showed on the screen Primula obconica and its varieties, and Primula japonica.

BRISTOL AND DISTRICT GARDENERS.—A meeting of this association was held at St. John's Parish Room, Redland, on March 7, Mr. Curtis presiding. Mr. Turnham, a member of the Reading Gardeners' Association, gave a lecture on trenching and sub-soils. Mr. Turnham illustrated his remarks by the aid of a very cleverly designed diagram. J. P. Bruce.

WARGRAVE AND DISTRICT GARDENERS'.—At the meeting of this association, held on March 6, Mr. W. H. Scott, Gardener to Capt. Coleridge, the Hermitage, Teyford, read a paper on "Plants Suitable for Bog and Water Gardens." The lecturer gave details for the arrangement and construction of a bog and water garden, and explained the necessity of a constant supply of fresh water. Weeds must be rigorously excluded and plenty of room allowed the permanent occupants. The best subjects for planting in bogs, lakes, and ponds, and on their margins were mentioned, and the proper method of planting them described.

SEVENOAKS GARDENERS'.—At a recent meeting of this society Mr. H. Cannell delivered a lecture on "Pruning and Cleaning Trees, and Preserving Fruit." To obtain the best results from fruit trees, they must have constant care in pruning, but all kinds could not be treated alike. In the case of vines, he favoured the "extension" system of pruning. This method of culture was adopted with the celebrated vines at Hampton Court and at Cumberland Lodge, Windsor, and was, no doubt, the secret of their long life and vigour. Besides being pruned, fruit trees must be kept clean by spraying with a suitable wash. Mr. Cannell gave the recipe of a simple method of preserving fruit, and showed a specimen bottle of Plums that had been preserved for nearly two years.

BECKENHAM HORTICULTURAL.—At the meeting held on the 1st inst., Mr. Mark Webster, of Kelsey Park Gardens, gave a paper entitled "Cropping the Kitchen Garden or Allotment to Obtain a Constant Supply of Vegetables." Councillor Moss presided over a large audience. A brisk discussion ensued after the reading of the paper. T. C.

REDHILL, REIGATE, AND DISTRICT GARDENERS'.—At the meeting of the above association held on Tuesday, March 5, Mr. G. Grace gave a lecture on "Flower Fertilisation and Insects." Mr. F. C. Legge occupied the chair. The lecturer showed how pollination was effected by various insects, and especially by the bee. A large number of lantern slides was displayed showing the essential organs of the flower, how they are situated, and the means by which fertilisation is effected. After the lecture a number of other lantern slides were thrown upon the screen, including pictures of local views and residences.

CRYDON & DISTRICT HORTICULTURAL.—Mr. M. E. Mills, Coombe House Gardens, Croydon, gave a very interesting "talk" on "Herbaceous Borders," before the members of the above society on Tuesday, March 5. In forming the border it is necessary to trench deeply, bringing the subsoil to the top, providing this be of a loamy character, and adding well-rotted manure. As each plant may require special compost to flourish in, the border should be made up accordingly. Always mingle the plants so that the colours of their flowers will harmonise.

Obituary.

GEORGE RICHARD ALLIS.—We regret to record the death of this well-known gardener, whose remains were laid to rest in Kempston cemetery, Bedford, on February 23. Deceased retired from the position of head gardener at Old Warden Park seven years ago, and since that time he had been living quietly at Kempston, at which place he passed away, on February 19, at the age of 79 years. Practically the whole of Mr. Allis's life had been spent in the service of the Ellison and Shuttleworth families. The late Mr. Allis was a successful exhibitor, and often acted as a judge at the principal county flower shows.

JOHN MARSHALL.—We regret to record the death of Mr. John Marshall, head gardener to the Earl of Craven, Coombe Abbey, which took place at Coombe Abbey Gardens on Thursday, March 7, from pneumonia, after a short illness.

ENQUIRIES AND REPLIES.

LEAK IN POND.—Can anyone advise me, or tell me where to get advice as to how I may prevent a pond head from leaking? It is concreted, but is always a source of trouble. The size of the pond is 150 x 25 x 4 feet. Langdown, Englefield Green, Surrey.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

APPLE SHOOT. A. L. G. The small red eggs on Apple shoot are apparently those of a species of mite (Bryobia). They are extremely abundant in such situations, but do not cause any serious harm to the trees. Any of the caustic potash solutions will kill them.

ARTISTIC FLOWERS. F. P. The picture is that of *Lapageria alba*, a by no means uncommon

plant which can be purchased from any nurseryman who cultivates greenhouse plants. *Nicholson's Dictionary of Gardening* would be suitable for your purpose.

BEGONIA. A. B. It is a fact that the variety *Agatha* produces more female flowers than are usually produced by *Gloire de Lorraine*. Both varieties have yielded vegetative sports, as distinct from seed sports.

CACTUS. Needle. We cannot advise you unless you can give us more exact information.

CORNISH "TRENTHAM" BOILER. H. A. T. A 4-inch flue space should be provided in the brick setting around the sides and top of the boiler, and a 9-inch space in the flue at the back leading into the chimney will be necessary, avoiding sharp turns in making this connection. We cannot see how you are going to attend properly to your furnace in a stoke-hole measuring only 8 feet by 6 feet, seeing that your boiler will occupy 5 feet of this ground space. Stoking a boiler of this size, capable of heating 1,300 feet of 4-inch piping, cannot be done within a space of 3 feet of the front of the furnace. You cannot possibly use the clinking-bar properly, if at all, within the space indicated. You should have a standing ground space of at least 5 feet in front of the furnace door. A recessed space of 2 feet, and the same width immediately in front of the furnace door, would answer the purpose fairly well as you are so hard pressed for room, and this narrow space will enable the clinking-iron, &c., to be used. We strongly recommend any of our readers who contemplate putting in new heating apparatus to provide ample ground space in the stoke-holes, not only to enable stoking to be done efficiently and comfortably, but also large enough to contain a few days' or weeks' supply of fuel at a time, and to see that safe and easy steps leading down to the said stoke-hole are made when the walls are being built. We prefer the more modern sectional and horizontal tubular boilers mentioned in your note to the one you have chosen, seeing that, in addition to the greater durability and efficiency of the tubular type of boiler as compared with the Cornish boiler, there is a substantial difference on the right side of £22, £16 10s, and £15 respectively in the prices, all the boilers having an approximate heating power of 1,300 feet of 4-inch piping, and all are economical in the consumption of fuel. See answer to *Alpine* in our last week's issue.

LILAC BUDS DESTROYED. *Lilac.* The buds appear to have been injured by birds. Place some cotton among the branches, and put up a scarecrow to frighten the birds away.

MARGUERITE LEAF MINER. F. H. The eggs are deposited in the leaf by a fly, which punctures the epidermis, or skin, and lays the eggs in the tissue of the leaf. The grubs hatch later and tunnel in the leaf, but they do not travel from one leaf to another. Later the grubs develop into the perfect insect. The best plan is to pick off the badly affected leaves and to burn them, and in the case of those leaves with a few of the insects only, to crush the grubs between the finger and thumb. Spray the plants with quassia extract occasionally, a substance distasteful to the fly. See illustration in the *Calendar of Garden Operations* to be obtained from our publishing department, price 7½d. post free.

MUSHROOMS IN MEADOW. S. W. You might insert the spawn at any time in June, preferably during showery weather. If you lift squares of turf and remove sufficient soil from under these to allow of a forkful of manure being substituted for the soil, a piece of spawn may be inserted in the manure which, having been made firm, should be covered by the lifted turf and made level. Such manure should be properly prepared as if for making a Mushroom bed, and used only when in the proper condition for spawning.

NARCISSUS BULB. A. D. The grub of the *Narcissus* fly (*Merodon*) too common. Burn the affected bulbs.

PEAR TREE. R. T. The tree is evidently badly affected with canker caused by *Nectria*. Branches as badly infested as those sent seldom bear fruit, as the necessary food cannot reach the buds. A fresh tree would be the best way out of the difficulty. Bad drainage favours the development of canker.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* FRUITS: R. A. Apple Court of Wick.

PLANTS: W. R. R. It is impossible to name with certainty scraps from seedling Conifers, and, of course, without cones. 1, 5, 6, species of *Picea*; 4, *Picea excelsa* var. *Clanbrassiliana*; 2, *Abies Nordmanniana*; 3, *Abies*. We are sorry not to be able to do more for you. Some nursery foreman who has the plants under his eye every day might give you more trustworthy information.—J. R. B. One of the Poplars showing the male catkins. Send when in leaf.—*Northumbrian*. 1, *Odontoglossum pulchellum*; 2, *Dendrobium nobile*; 3, *Juniperus communis* var. *hibernica*; 4, *Juniperus sinensis*; 5, *Cephalotaxus drupacea* var. *fastigiata*.—A. D. 2, *Lopezia coronata*; 1, not recognised.—*Oxonian*. 1, *Cupressus (Retinospora) funebris*; 2, *Aloe verrucosa*; 3, *Thunbergia (Meyenia) erecta*.—M. A. W., *Stansted*. 1, *Begonia Ingramsii*; 2, *B. hydrocotylæfolia*; 3, *B. manicata*; 4, *Adiantum Capillus veneris*; 5, *Lactaria lepidia*; 6, *Hippocrepis aulicum*.—G. E. *Odontoglossum crispum*.—J. D. 1, *Phalænopsis Schilleriana*; 2, *Duranta Plumieri* variegata; 3, *Opthiopogon japonicus*, *Bot. Mag.*, t. 1,063; 4, *Sericographis (Jacobinia) Ghiesbreghtiana*; 5, *Sobralia macrantha*; 6, Send when in flower.—H. A. *Hæmanthus natalensis* and *Ornithogalum lacteum* (the white).—M. G. T. *Broughtonia sanguinea*.

PRÆRIS FERN. H. L. Though there are no thrips present on the withered fronds received, we believe the injuries to be due to this active little pest. The best means of destroying thrips is to fumigate the house with hydrocyanic acid gas, or failing this, with one of the nicotine vaporising compounds. You might dip the plants into tobacco water, and if the operation is repeated occasionally, the plants will be cleansed. Not having seen your plants we do not exactly know their condition, but if the fronds are greatly disfigured, we should be disposed to cut them all off, and after fresh ones appear, repot the plants and make a fresh start.

ROMAN HYACINTHS. W. S. These cannot be successfully forced for two seasons in succession. Forcing being somewhat expensive it would be wasteful to employ inferior bulbs for such treatment. Even if planted out-of-doors Roman Hyacinths are not a permanent success in this country unless in selected spots in the most favoured situations.

TOMATOS. C. W. The seedling plants are attacked by what is known as the "damping off" fungus, *Pythium de Baryanum*. The cure for this consists in lessening the water supply to the roots and by exposing the plants to the sun's rays, taking care also to admit as much fresh air to the structure as may safely be done.

VINE SHOOTS. A. S. We can find no trace of fungus disease or of insects. The only cause which we can assign, from the appearance of the shoots, is excessive treatment with artificial manures. We have seen that over-watering with liquid manure will produce this result.

WAGES FOR GARDENERS IN SOUTH AFRICA. *Africa.* In our issue for February 27, 1904, p. 138, is a letter from a resident gardener in South Africa, who advises no person to accept a lower salary than £3 to £3 10s. per week, and on no account to sign an agreement for two or three years before going out. He says £2 a week in Africa is scarcely the equivalent in value of £1 at home.

COMMUNICATIONS RECEIVED.—S. T. W.—H. R. H.—A. P.—W. G. S.—A. D.—C. B. P.—South African Products Exhibition.—S. W. F.—J. Mayne.—C. B. W.—P. G.—W. A. C.—W. W. P.—Enquirer—Pompon—Rambler—Miller Bros.—H. J. C.—Dr. P.—Alwin Berger—W. O.—J. E. W.—Wakeley Bros.—S. C.—S. W.—H. C.—R. W.—W. S. L., Manila—W. H. C.—G. W.



THE Gardeners' Chronicle

No. 1,056.—SATURDAY, March 23, 1907.

CONTENTS.

Agriculture at Rothamsted	190	Obituary—	
Apple Ross Nonpareil	188	J. Cochrane	196
Baker, John Gilbert	188	Robert Warrington	196
Books, notices of—		Orchids, a sale of	190
Manual of Forestry	191	Plant notes—	
Brazilian Orchids	191	Romulea pylea	188
Camellias in the open	198	Plants and atmospheric nitrogen	190
Carnations, German system of cultivating	190	Polemoniaceæ, a monograph of	191
Cat as a scarecrow	189	Pruning of Roses	181
Chrysanthemums, cut	189	Smith, Worthington G., Societies—	189
Clayton, H. J., retirement of	190	Manchester and North of England Orchid	195
Conifers, an early work on	198	National Carnation and Picotee	189
Curran-bud mite, cure for	198	Royal Horticultural	194
Daphnes and other plants in the south-west	198	Soil sterilisation	189
Decimal system, the	190	Tobacco, London grown	190
Ferns, hardy, in spring	188	Trees and shrubs in Scottish gardens	192
Gardeners in the United States	191	Trees, fastigate	184
Gardening papers, the	190	Vegetables—	
Hellebores	198	Asparagus beds	192
Herbarium, a famous	191	Kales at Wisley	192
Kew notes—		Ventnor, a note from	198
The Alpine house	185	Week's work, the—	
Musa Ensete as a bedding plant	198	Flower garden, the	186
Narcissus not flowering	198	Fruits under glass	186
Nicotiana Sanderae	198	Hardy fruit garden	186
Nomenclature, plant	198	Kitchen garden, the	187
		Orchid houses, the	187
		Parks and gardens	187
		Plants under glass	186

ILLUSTRATIONS.

Apple Ross Nonpareil	182
Baker, John Gilbert	191
Cat as a scarecrow	189
Crataegus Oxyacantha variety stricta	184
Flower-sketching under difficulties	189
Grafting, two methods of	186
Pyrus pinnatifida variety fastigiata	185
Smith, Worthington G. View of the lake in the Royal Gardens, Kew (Supplementary Illustration).	188

THE PRUNING OF ROSES.

THE operation of Rose-pruning requires the exercise of a considerable amount of professional skill, and it is necessary for the operator to possess an adequate knowledge of the particular varieties he has to prune. Different varieties require different treatment. It is not possible, however, to consider here the peculiarities of each variety. I will therefore speak of types, or classes, and state what pruning I have proved during many years' practice to be productive of the best results. The operator, however, must first decide whether he will so prune as to obtain flowers of the first quality suitable for exhibition, or simply a large quantity of flowers of moderate size and quality for decorative purposes. In the first case much closer pruning will be necessary, and the subsequent flowers will need to be reduced to one on each shoot, but in the latter case the knife need not be so freely used. In any case the sappy, weak and inferior shoots should be removed; they will not produce flowers if allowed to remain, and would only congest the plants with weak, sickly foliage, preventing light and air from duly penetrating to the more vigorous flower-bearing wood. My thoughts turn to a famous Rose border of one-quarter mile

in length with which I had connection 20 years ago. On each side of the drive there was a border 9 feet wide; the back row of Roses were all of a climbing habit, trained up strong stakes, and from these plants to the front plants they graduated, the border having a gradual rise from front to back. The effect at flowering time can perhaps be imagined. A free use of *Lilium auratum* planted in clumps at intervals amongst the Roses continued the display. Since the introduction of so many beautiful Rambler varieties, such a border would now surpass what I have described, which at that time was visited by all the leading rosarians of the day.

Returning to my subject, I may say that I have observed that Roses growing on the Manetti stock do not succeed with such severe pruning as those on the Briar. It is apparently impossible to obtain from cut-back plants such fine exhibition blooms as are staged from maiden-plants.

TIME FOR PRUNING.

The gardener must be guided by the conditions of the weather, and by local circumstances, for no hard and fast rule can be observed in this matter. It is generally considered that when the month of March has arrived it is time to prune; so it may be in some cases, but the observant man will first consider whether there are any circumstances that render it advisable to defer the operation for a week or two longer. Early pruning may have the result of causing many of the earliest and best flowers to be destroyed by cold winds, late frosts, and destructive mildew.

HYBRID PERPETUAL VARIETIES.

As with many other Roses, the weak shoots should have been removed from these in October last, but if this was not done, then remove them now. Shorten the strong shoots made last season to five or six eyes (buds), the more moderate shoots to half that number of buds, and the weakest to one or two eyes. Cut out all the old snags and useless wood, and if there are too many shoots or some that cross with another, thin out the unnecessary shoots, cut back those which cross, and prune so that when the operation is completed the regulated shoots will be equidistant.

HYBRID TEAS AND TEAS.

The end of March will be quite soon enough to commence the pruning of Hybrid Teascented varieties. These being, as a rule, of strong, sturdy growth, may be pruned in the same manner as Hybrid Perpetuals.

Tea-scented varieties should be pruned in April. The strongest shoots on dwarf-growing plants should be shortened to about eight eyes, and the medium and weak growths more severely. The climbing varieties of this section will require to have some of the shoots thinned out, and the unripened points of strong shoots cut back. Varieties such as Ards Pillar, Billiard et Barré, François Crousse, Noella Nabonnand, &c., that make vigorous growth, may be treated in a similar way to the climbing sorts.

RAMBLER AND "WICHURAIANA" ROSES.

Taking the popular Crimson Rambler as a type, much of the pruning of such Roses should be done soon after the flowering period is past; the shoots which have flowered may

then be removed entirely, thereby leaving a clear field for the strong, fleshy growths proceeding from the base. I do not consider it good policy to remove too great a number of these shoots at one time, it is better to extend the operations over a period of two or three weeks. Under this section there are such varieties as Aglaia, Blush Rambler, Helène, Philadelphia Rambler, Psyche, Gruss an Zubern, &c. The Wichuraiana Roses and the hybrids require similar treatment. This section includes such beautiful kinds as Dorothy Perkins, Lady Gay, The Farquhar, Debutante, and many others whose glories are becoming well known. These are so vigorous that they are capable of soon covering a large area. The long, vigorous shoots which were produced from the base during the last season only require to have the soft, unripened tips removed from them. It is very inadvisable to perform this operation before growth is completed in the autumn, for the sake of obtaining order and tidiness, for by so doing, the dormant buds which would produce flowers the following season, commence to grow into weakly side shoots, and only half a crop of flowers is the result.

AUSTRIAN AND OTHER BRIARS, &c.

How often we see the beautiful Austrian Roses denuded of their flowering growth in spring! The deep yellow flowers, and fragrant foliage of the Persian yellow makes this variety one of the worthiest yellow Roses in cultivation. Simply to thin out the weak shoots, and to remove the tips of the strongest of last year's shoots satisfies their present needs. Provence or Cabbage Roses may safely be pruned after this date, cutting out the weakest shoots and pruning the strong and moderately strong shoots back to two or three eyes. This class of Rose, together with the Moss Rose and their hybrids, amply repay for high cultivation. Moss Roses should be divided into two sections: the ordinary Moss Roses and their hybrids, comprising all the strong growers, should be pruned by freely thinning out the weak shoots and shortening the stronger ones about one-fourth their length. The perpetual Moss Roses require much closer pruning. Moss Roses are worthy of a place in every garden, as they furnish good flowers right into the autumn. Hybrid Chinese and Hybrid Bourbons require very similar treatment. As they flower in summer and autumn, preparation is necessary by removing or thinning out in October many of the weak shoots. If this work was not done at that time, it may be done early in April, at the same time shortening the strongest shoots to six buds, and the weaker ones more severely. Varieties such as Blairii No. 2, Carmine Pillar, Madame Plantier, and Fulgens, which are amongst the best pillar Roses, will not require such severe pruning as the others of this section.

Damask Roses, French Gallica or Provins Roses are a very old-fashioned section, the varieties with striped flowers forming conspicuous objects in the Rose garden. The variety Rosa Mundi, more generally known as York and Lancaster, is one of the best; at the end of March prune the strongest shoots to 6 or 8 eyes, and the weaker growths to 3 eyes, thinning out old shoots and useless wood.

The old Maiden's Blush, coming under the Alba Rosa section, so much appreciated before the advent of modern varieties for its extreme

delicacy of colouring, may have last year's shoots pruned to the third or fourth bud from their base.

In respect to the Bankian Roses, all hope of flowering is sometimes destroyed by injudicious pruning; indeed, they require very little pruning. In June, when the plants have flowered, cut out the long, gross shoots, and shorten the tips of those remaining. This Rose requires to be planted against a warm wall, and in a moderately dry border.

Musk-Roses and their hybrids make very rapid growth. They are exquisitely beautiful and free-flowering. Amongst them are Madame d'Arblay, The Garland, &c., each distinguished by the peculiar Musk-like scent. Thin out the shoots freely early in April, and shorten the shoots one-half or one-quarter, according to the space it is necessary to cover with them.

Evergreen Roses, such as *Félicité et Perpétue*, *Myrianthes Rénoncule*, only require to have the

this country and abroad. A short article in *Möller's Deutsche Gärtner Zeitung* for February 23, concerning Herr. F. Sinai's nursery at Frankfort-on-the-Main, emphasises this fact in regard to the Chrysanthemum, the aim being the production of perfect blooms for sale purposes from the beginning of the month of October to the end of the year—therefore three months. For this purpose only those varieties are grown which possess properties and qualities which are best fitted for the end in view—matters that require powers of close observation, good acquaintance with varieties, and acute judgment in forming a correct verdict of the character of a variety. Specialists having these qualifications are enabled to attain results that the more superficially working horticulturist never reaches. Such a specialist is Herr. F. Sinai. In this nursery the propagation of the Chrysanthemum takes place in April and May, in the usual mode

method could the houses be cleared conveniently. Efforts are continually being made to reduce the number of varieties, but the length of the flowering-season being from October to December, it is necessary to have a considerable number under cultivation, in order to have sufficient plants of every colour for every week for cutting.

The chief varieties grown are—early in October: Mme. Gustave Henry and Mme. Draps-Dom; end of October: *Roi d'Italie*, *Belle Gascogne*, W. Seward; beginning of November: Miss Alice Byron, Mlle. Clementine Touzet, Master W. Tucker, Miss L. Cheeseman, *Mermaid*, *La Gracieuse*; end of November: *Princesse Basaraba de Brancovan*, *Sappho*, W. Duckham, *Satin rose*, Mme. Philippe Rivoire, Western King; beginning of December: *Oceana*, *Sunstone*, Mme. Paolo Radaelli; Christmas: Mme. M. Th. Charvet and Mme. Calvat. Herr. Sinai grows 15,000 of these single-bloomed plants. F. M.

ROSS NONPAREIL.

To Mr. Baylor Hartland, Arn Cairn Nurseries, Cork, we are indebted for specimens of what he describes as the true Ross Nonpareil. The fruits are rather more than 2 inches in length, and about the same, or rather more, in breadth; subglobose, slightly depressed at the top, with a small, shallow eye and short tube with marginal stamens and infolded segments. Stalk half-inch, in a deep depression. Skin golden-brown, streaked with crimson. Flesh firm, yellowish; carpels oblong pointed. Flavour brisk, acidulous, excellent for the season.

THE STERILISATION OF SOIL.

(Concluded from page 152.)

STEAMING.

Steaming may be effected from either above or from below. When from above the steam is forced into the soil by means of what is termed a steriliser, an apparatus consisting of a hollow frame, measuring 5 by 2½ feet, constructed of steam pipes, with prongs, hollow and 10 inches in length, pointed and perforated to allow the steam to pass into the soil. The parts are covered with a light metal cover, which prevents steam from passing out of the soil. The ground should be fairly open when it is steamed, and, if hard, loosened by forking it over. The prongs are thrust into the soil by pressing the apparatus downwards; the steam is turned on when the pressure is at from 40 to 50 lb. per square inch, and the soil is steamed to a depth of 9 inches, more or less, in from two to three minutes. The portion of the soil covered by the steriliser is brought to a temperature of 180° to 212° Fahr. or more, when the steam is turned off at the generator while the steriliser is removed to a fresh place. About 1,800 square feet or 200 square yards are usually sterilised in a day with one steriliser at a cost of about £1 for fuel and labour, the soil being sterilised *in situ*, as in a Cucumber or Tomato house, or even outdoors.

Steaming from below is effected by means of a system of perforated iron or galvanised iron pipes, 2 inches in diameter, with ¼-inch perforations about 1 inch apart. The framework of pipes is laid on the surface of the ground or on a floor, and the soil to be sterilised is placed on the framework to the depth of 1 foot. The steam is passed through the pipes at a pressure of about 30 lb. to the inch for 1 to 1½ hours. In the case of the framework being laid on soil, and soil from the sides of the bed placed on to the depth of 1 foot, it follows that the soil below, as well as above the pipes, will be sterilised. The cost of this mode of sterilisation is about 30s. per 1,000 cubic feet of soil, calculating that below as well as that above the steam pipes or steriliser.

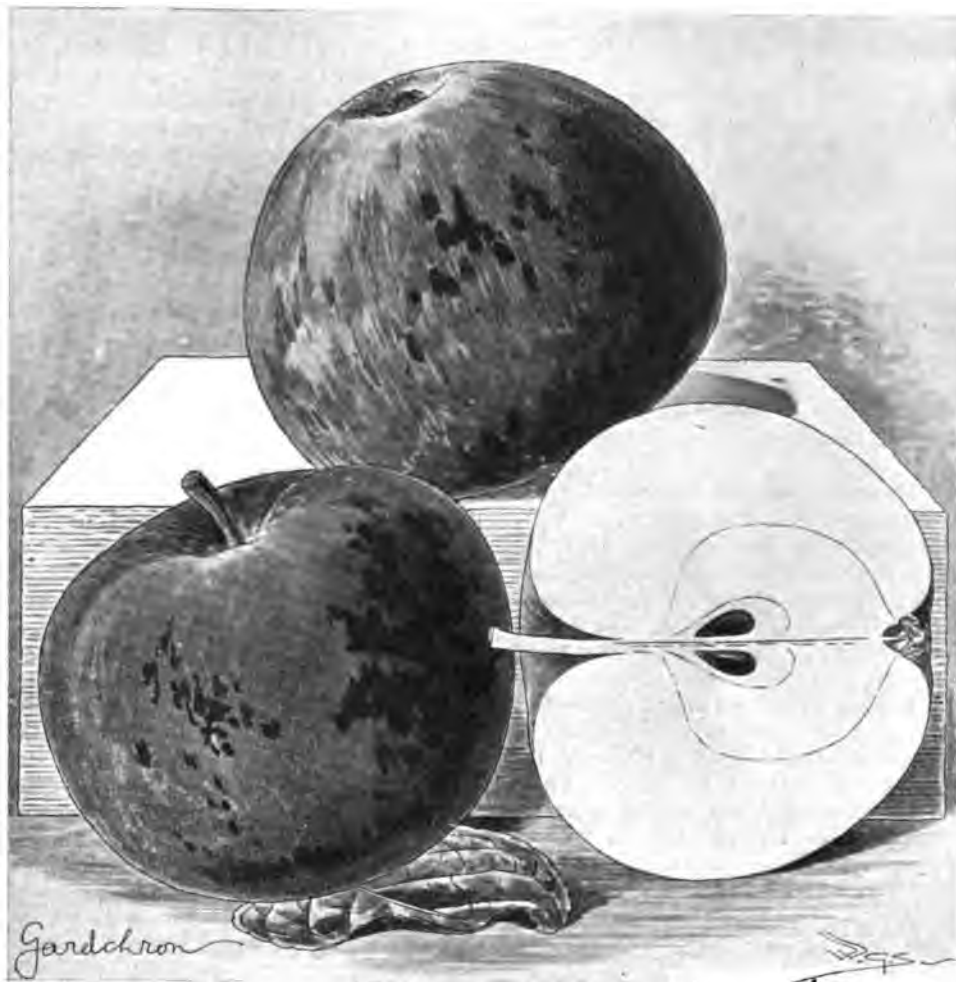


FIG. 80.—APPLE ROSS NONPAREIL.

small shoots thinned out, and the tips removed from the stronger ones. This form of Rose, grown as weepers on tall standards, form perfect masses of bloom, and in such cases the "head" should be kept well thinned. By regulating the length of pruning, flowers will be produced from base to summit. W. H. Clarke, Aston Rowant, Oxon.

(To be continued.)

CHRYSANTHEMUMS FOR CUT BLOOMS.

As may be readily understood, the success of the specialist in any branch of cultivation must greatly exceed that of the cultivator of many species, whether for market purposes or otherwise. This fact is apparent on every side, and in particular in Chrysanthemum culture in

and when the cuttings are rooted singly in small pots, they are planted out in the then empty Lilac houses, from which, as soon as they have taken root, the lights are removed, so that throughout the summer the plants stand in the open air, and the usual round of affording water, stirring the surface of the soil, syringing, the fight with injurious insects and fungus plant-pests, and the nipping off of superfluous flower buds and shoots carried out, so as to obtain the best possible results; and on each plant only one flower is allowed to remain. Seeing that the earliest house must be emptied in readiness for Lilac forcing by the middle of October, and all the other houses in rotation up to the end of the year for a similar purpose, Herr. Sinai arranges his plants according to the dates at about which they flower, all such as bloom together being placed together, as only by this

STERILISING BY MEANS OF HOT WATER AND BAKING.

By sterilisation with hot water, only a few inches of surface soil are sufficiently heated to kill nematode worms and fungus pests, any deleterious effects as regards bacteria being confined to the putrefactive species, as they, from their food being mostly located in the surface soil, are most susceptible of injury by scalding the soil. In the case of sterilising by baking, a similar effect is produced as in the case of hot water, though reversely, the outside of the turves on the hot plate not being heated so highly as to prejudice other than the putrefactive micro-organisms.

Sterilisation by steam is almost identical with that by hot water: the surface soil is heated to a high temperature and the putrefactive bacteria are practically killed as well as fungus pests, nematode worms, and insect pests, also weeds and weed seeds.

The putrefactive bacteria, as we have already described, are present everywhere, therefore, if they be destroyed in surfacing soil, or the crust of turfy loam, others will speedily take their place, assuming the organic matter not to have been burned. The remains of vegetation and also of animals will be seized upon and be quickly decomposed, hence we may in a measure account for the good result following scalding, baking, and steaming soil, equal in many cases to manuring. The processes do not affect the soil bacteria, particularly in the case of surface scalding, baking, or steaming, for these organisms are more abundant below the top 9 inches of soil, where they find the necessary bases (lime, potash, and soda), as well as the nitrogenous matter.

EXCESS IN STERILISATION.

There is no doubt, however, that scalding, baking and steaming of soil can be carried too far, and that baking and steaming are the more likely to be disastrous. As an instance I may mention that to a large firm growing Cucumbers very extensively, I advised scalding the walls and floors (with the beds) with boiling water for the destruction of eel-worm, sleepy disease, and leaf-spot, and also for the sterilising of new soil as well as old. Instead of scalding the soil the firm steamed it, and in this steamed soil Cucumber plants would now grow. What degree the heat reached I was unable to ascertain, beyond that it was considerably above 212°, and it is certain that the soil was to all intents and purposes intensely sterilised, which, in its strict sense, implies removal of nitrogen and consequent barrenness. C

Cultural sterilisation requires no great heat in respect of freeing soil from pests. Animals—Vermes, Mollusca, Crustacea, Arachnida, Myriopoda, and Insecta, succumb to a temperature of 125° Fahr., and most, if not all, fungus pests perish in a heat of 130° to 135° Fahr., so that there is no need to heat soil to over 140° to 160° Fahr., the temperature at which the fermentative bacteria thrive, in order to destroy the ground pests of useful crops. The high temperature of steam, always over 212° Fahr., renders it somewhat dangerous to use for fear of destroying the useful micro-organisms as well as the parasitic bodies, but when used judiciously, and not so as to heat the soil above 180° Fahr., it is perhaps the best means for effecting cultural sterilisation. G. A.

THE FERNERY.

HARDY FERNS IN SPRING.

At the outset we may say that the hardy Ferns we have mainly in view are those beautiful varieties of our native Ferns which so far excel the normal forms in beauty and diversity of form as to be infinitely preferable to them for garden-culture or the decoration of cool or cold conservatories. In towns and cities where

houses lie at little or no distance from each other, and many conservatories and parts of gardens are therefore deprived of sunshine to a large extent, we have precisely those conditions which are antagonistic to the satisfactory cultivation of flowering plants and yet peculiarly favourable to that of shade-loving Ferns, and in all such positions a collection of choice varieties cannot be too strongly recommended. It should be borne in mind that these varieties being the direct descendants of the common forms, regarded by the connoisseur usually as weed forms, are perfectly hardy, and so far as living goes will thrive wherever the common ones can do so. Many of them, however, are of such delicate make that they naturally cannot develop and display their peculiar charms if exposed to the dwarfing effects of hot sunshine and wind. Naturally, too, even the common types we find to assume far finer proportions and greater beauty in shady lanes and secluded glens than by the roadside or on exposed moors and hillsides, and the Fern paradises of the world are invariably found in tree-shaded ravines and hollows where not only is the bulk of the sunshine excluded, but, as a rule, hardly a breeze penetrates.

It is under such conditions that Tree Ferns form forests, and the ground is thickly clothed with a luxuriant undergrowth of numerous other Fern species. In this country, with its more or less defined seasons of summer and winter, most of the indigenous Ferns are deciduous, the fronds dying down in the autumn, but a number are evergreen, and under favourable conditions maintain their fronds in fair condition throughout the winter, only dying down when the new spring growth is well in evidence, and by its vigour monopolises the energy of the plants at the expense of the old foliage. Whether deciduous or evergreen, however, there is a long period of rest, extending from October to March, and as this rest is an essential to their well-being, a really warm conservatory is less beneficial than a quite cold one, though one from which the frost is fairly well excluded, keeps the evergreens, which do service in the winter, from becoming as shabby as they will do if frozen hard from time to time.

In March, although there is no obvious growth, the root action certainly commences, and it is precisely at this period that the plants can be handled to the best advantage as regards re-planting, re-potting, dividing, and so on. The long rest gives them a vigour which practically nullifies the effects of shifting and dividing, and enables the Ferns to establish themselves immediately in their new quarters; while the fact that there are no fronds to damage in the deciduous kinds, while those of the evergreen habit, if damaged, will soon be replaced is, of course, a great advantage. These remarks apply naturally to all hardy Ferns, even the exotics, such as *Struthiopteris*, *Adiantum pedatum*, *Onoclea sensibilis*, and others, which have been introduced and are fully as hardy as the native forms. As regards re-planting and re-potting this is not advisable if the Ferns are in good condition and good form as regards specimen plants, but some species such as the *Lastreas*, *L. filix mas*, *L. dilatata*, *L. montana*, and *L. æmula*, and the Lady Fern, which send up their fronds in circlets, shuttlecock fashion, round a central crown, have a habit of forming lateral offsets by buds, which in time assume adult size and transform the original single crown into a bunch of smaller ones, due to competition for light and air and root room between the numerous individuals. This, in the varietal form, detracts materially from their beauty, and prevents the individual crown from developing its full character, which is dependent upon full growth.

The fronds, too, naturally intermingle, and in this way the symmetrical grace of the plant is entirely lost. It is well, therefore, whether the specimens be in a pot or in the ground, to

turn them out or dig them bodily up, and take the adventitious crowns away, replanting them elsewhere. This is an easy task, as each crown forms its own set of roots and fronds, and can, as a rule, be pulled away with facility from the central crown, taking care during the operation not to pinch the crown, which at this time contains within itself the undeveloped fronds of the coming season. When these are removed, the central crown will send up its circlet of fronds with far greater vigour, and display its full charm when fully grown. This applies to all crown-forming Ferns, but not to those whose rootstocks travel, such as the *Polypodies*, *Cystopteris montana*, *Pteris aquilina*, *Adiantum capillus veneris*, *A. pedatum*, &c. In these the fronds rise separately in a continued row or rows when the rootstock branches, as is invariably the case.

Once established, all these are best left alone, as the fact that they do travel remedies the evil of crowding above alluded to. If it be desired to divide them for propagative purposes, short lengths of the rootstock, severed with a growing tip, a frond or two, and as much root as possible, will soon establish themselves if planted, preferably in pans instead of pots, to give them more room. A good compost for Ferns generally is a mixture of good loam and leaf-mould, in about equal parts, not sifted, but rather lumpy, and a liberal dash of coarse silver sand. Pots should be well drained, and should not stand in saucers constantly filled with water; a large saucer, with a smaller one inverted in it, upon which the pot is stood above the water surface, may, however, be kept filled, with advantage to most species, stagnation being thus avoided, as well as drought. Sankey's well pots, with a hole in the side an inch from the bottom, and a perforated diaphragm an inch above the hole, are also extremely good for Ferns, and obviate greatly the risk of drought by always retaining a little water in the bottom of the pots. In the open, good garden soil suits hardy Ferns very well, but it is beneficial to add a little of the above compost when planting out offsets obtained by division, and to see that water is supplied if drying winds set in before they are established. The Shield Ferns (*Polystichum*) are not so much addicted to forming adventitious lateral crowns, but a number of them form buds near the base, or even all the way up their fronds, and these should be collected for propagation purposes when the old fronds are being removed later on in the season. It is not wise to remove fronds which are still green, as it impoverishes the plant. *Chas. T. Druery, V.M.H., F.L.S.*

PLANT NOTES.

ROMULEA PYLEA.

I RECEIVED bulbs of this little plant from Mr. Archer-Hind four years ago. He informed me that it had appeared in his garden among some other bulbs that he had obtained, its identity being evidently unknown to the sender. He said that it was very rare and practically not in cultivation. Certainly, I have never seen it in any garden but his. Mine have thriven well and increased, and a couple of dozen flowers are generally produced in March. The first of the year opened on the 11st inst. It is a pretty flower, pure white with a golden throat and 2 inches across when expanded in the sunshine. When twenty or more blossoms are fully open on a sunny morning, the clump, with its thin, rush-like foliage, is a pretty sight. The species is not mentioned in any horticultural dictionary that I possess. Another *Romulea* that will be open in a day or two is *R. nivalis*, also not alluded to in the dictionaries. The flowers of this are white, shaded with blue. *R. speciosa* is later with me and is showing no sign of flower as yet. *S. W. Fitzherbert*. [Both species are included in the *Index Kewensis*, but the names have also been given to forms of *R. Bulbocodium*.—Ed.]

FASTIGIATE TREES.

(Continued from page 150.)

DECIDUOUS VARIETIES.

POPULUS NIGRA PYRAMIDALIS (P. fastigiata, the Lombardy Poplar).—At the present time this Poplar is by far the most common of fastigate trees. It was introduced from Italy about 150 years ago, and is now as well known as any of our native trees. It grows to 120 feet or even 150 feet high, and its great height and slender form cause it to generally dominate the vegetation with which it is associated. In combination with round-headed trees, and planted with proper restraint, it is most effective. (See supplementary illustration.) Avenues within the garden made of this tree are also very stately and impressive; a good example of its use in this way may be seen at Aldenham House, Elstree. It is not suitable for planting in groups of more than three to five, and the worst possible way of planting it is in solid blocks of a score or more trees without anything else to relieve it. In places where scenic effect cannot be considered, and where a block or screen of vegetation is wanted quickly, such as is often the case in suburban residences where lofty and unsightly buildings have sprung up close at hand, no tree is better than the Lombardy Poplar, although its ally, the fastigate form of the White Poplar, may also be used for the sake of variety. For this purpose both these trees have to be planted thickly, so thickly that they will almost touch when they get to full size.

For a long time only male plants of the Lombardy Poplar were known in this country, but there have been added to the Kew collection in recent years both female and hermaphrodite ones.

POPULUS ALBA PYRAMIDALIS (P. Bolleana of gardens).—Very like the Lombardy Poplar in habit (although rather wider in proportion to its height), this tree is, of course, easily recognised in winter by its pale smooth bark and, in summer, also by its leaves being hoary white beneath. It does not grow so fast as the Lombardy.

CARPINUS BETULUS COLUMNARIS.—The Hornbeam is naturally a tree with pendulous, rather Birch-like twigs, but this variety has its branches very erect, thus forming a slender spire-like tree, very striking and elegant. A similar variety of Hornbeam, although not quite so slender in form, is called pyramidalis. Dr. Masters has recently called attention to a fine specimen of this tree growing in the Solferino square at Rouen. [The tree is supposed to be some 30 feet or more in height and even more in width, in form like a gigantic Irish Yew.—ED.]

LIRIODENDRON TULIPIFERA FASTIGIATA.—As a rule the upright Tulip-tree as seen in Britain is not particularly striking, but this, I believe, is because most or all of the trees are young, and not in character. In the old-established nurseries of Messrs. Simon-Louis, at Metz, there is a fine specimen of this variety whose cylindrical habit and boldly cut foliage attract one's notice immediately. According to my recollection, it is 30 feet or so high.

CRATÆGUS OXYACANTHA STRICTA.—The foliage and flowers of this tree are identical with those of the common Hawthorn, in fact it does not differ from it except in habit. Whilst not so markedly fastigate as the Lombardy Poplar, for instance, it is still very erect-growing, and on the whole one of the most distinct of the many varieties of the Hawthorn.

PYRUS PINNATIFIDA FASTIGIATA.—Pyrus pinnatifida is grouped with the Whitebeam-trees, or "Aria" section of the genus. It is, however, distinguished by its leaves being very deeply cut, and it thus becomes a connecting link between the simple-leaved Whitebeam-trees and the pinnate-leaved "Sorbus," or Mountain Ash section. The fastigate variety is a very hand-

beautiful. It often assumes a rather erect mode of branching, especially when young, but in this variety this characteristic is more strongly marked—and permanent. [A good town tree as seen in some parts of Germany.—ED.]

PTELEA TRIFOLIATA FASTIGIATA.—The "Hop Tree" in even its typical form is not particu-

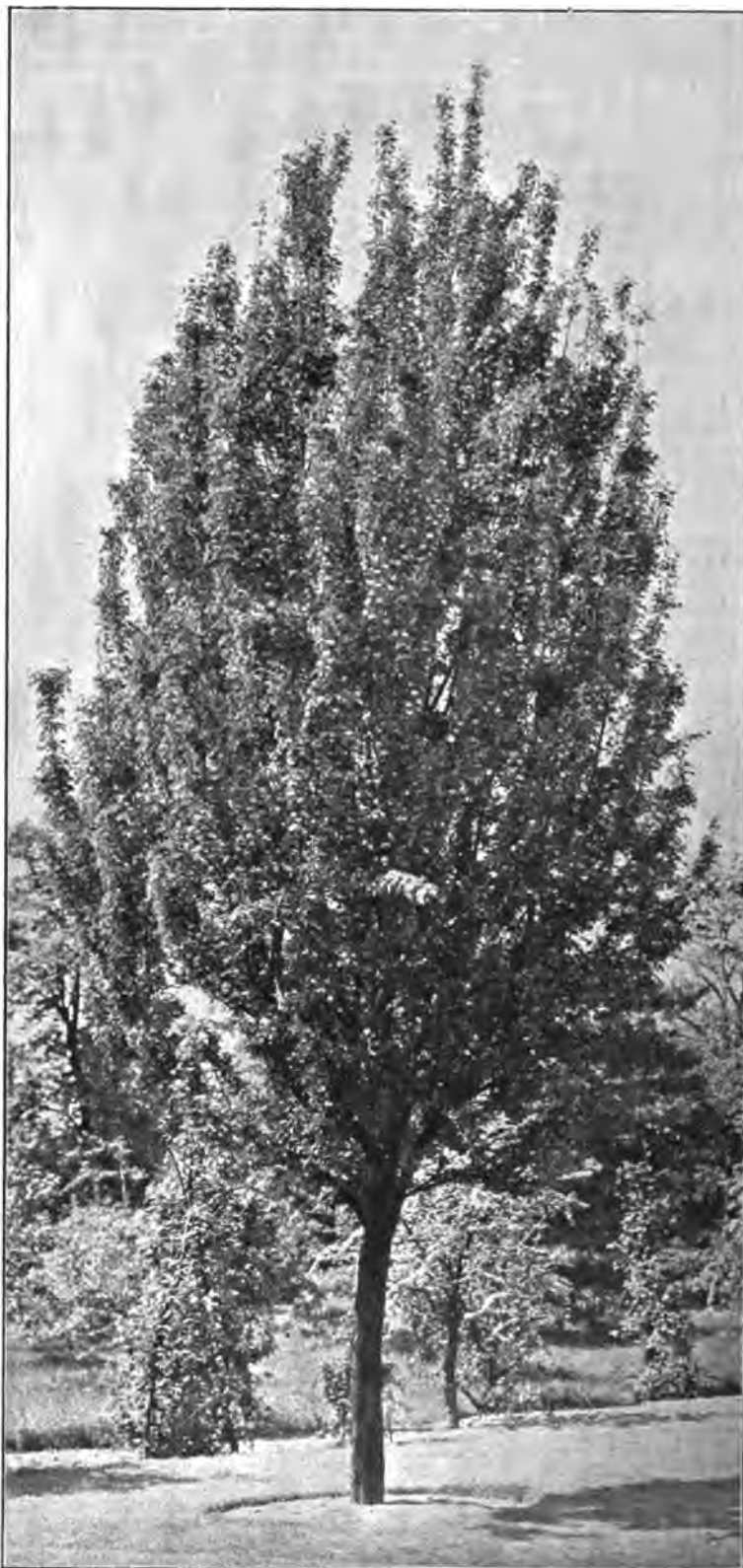


FIG. 81.—CRATÆGUS OXYACANTHA VAR. STRICTA.

some tree, flowering and fruiting with all the freedom of the group to which it belongs (see fig. 82).

PYRUS AUCUPARIA FASTIGIATA.—In all its forms the Mountain Ash is a very attractive tree, for its leaves, flowers and fruit are all

largely well known in this country. It is a North American tree or large shrub, and is chiefly noteworthy for the clusters of numerous flat circular fruits it bears in autumn, which have a bitter, Hop-like taste. This variety only differs in its erect habit. [One of the finest

specimens of the type was once in Printing House Square near the *Times* office!—Ed.]

ÆSCULUS HIPPOCASTANUM PYRAMIDALIS.—I only know this tree in a small state—about 20 feet high. Its branches grow at an angle of about 45°, and give to it a distinctly pyramidal shape. Where Horse Chestnuts are desired for street planting or narrow avenues it may prove useful.

KEW NOTES.

THE ALPINE HOUSE.

AFTER having been retarded for a long period, owing to the recent spell of cold weather, many beautiful and interesting plants were recently in full flower in the Alpine house. Among the most conspicuous are the following species, &c.:—



FIG. 82.—*PYRUS PINNATIFIDA* VAR. *FASTIGIATA*.
(For text see page 184.)

ARALIA CHINENSIS PYRAMIDALIS.—This variety was sent out by Messrs. Barbier, of Orleans, a few years ago. The branches of the species itself are erect, but this variety is curious and distinct because of the large compound leaves also being erect. *W. J. Bean*.

(To be continued.)

Cyclamen ibericum, with an abundance of rosy-purple flowers, which have a dark blotch at the base of the recurved segments. The heart-shaped leaves of this Caucasian plant vary a great deal in the marbling of the upper surface, but usually have a well-defined zone. *C. Atkinsi* is a form of this with somewhat larger

flowers, varying in colour to almost white. *C. ibericum* has been in flower since the end of January. A little later in coming into flower is *C. coum*, which differs from the above in having its dark-green, round leaves unspotted. The buds are in evidence long before the bright crimson flowers are fully expanded, the flower-stalk reclining on the surface of the soil until such time as the flower opens, when it slowly raises itself. Although both these species are hardy in the open border, they are seen to better advantage when cultivated in pans in a cold frame and flowered under cover of a cold house.

Scoliopus Bigelovii is a native of California. It is a rare plant of bulbous habit, and the broad, mottled leaves are similar to those of an *Erythronium*. Several flowers are produced in succession from each bulb, each on single stems. They have a somewhat unpleasant odour, while in colour they are green with chocolate markings. While not a showy plant, it is worth growing on account of its earliness and interesting appearance.

Leontice Alberti is a member of the Barberry family from Turkestan, with much divided glaucous foliage, and clusters of yellow and reddish brown flowers. Also in flower is *L. altaica*, a similar plant, but with clear yellow blooms.

Iris are well represented by several species, including *I. stenophylla* with its bright blue-purple flowers with dark velvety blotches on the falls; *I. Tauri*, with flowers of a deeper red-purple shade, but of similar habit and appearance, in fact intermediate forms may be seen that connect the two; *I. Danfordiae*, the charming little species with rich yellow flowers; and the ever-welcome *I. reticulata* with its variety *histrioides*.

Saxifragas are also much in evidence with *S. Grisebachii* showing its crimson stems and flowers, while another red-flowered one is *S. media*. Of those having yellow flowers, there is *S. apiculata*, *S. Boydii*, and *S. Kotschyi*; white being represented by *S. scardica* and *S. Burseriana*, the last-named in the form of *S. Burseriana* var. *major* is one of the earliest of our spring flowers to unfold its buds, and is unsurpassed in beauty by any other member of this genus. In size of flowers this species varies to a great extent, some forms having much smaller flowers than the one above-mentioned. The purple-flowered set is represented by *S. oppositifolia*.

Adonis amurensis is fast becoming a general favourite, with its handsome, finely-cut foliage and yellow flowers. While these are not so large as those of *A. vernalis*, they are produced very early in the year, often in the middle of February. It is in full beauty in the rock garden. The double form, with its green centre, is a most interesting plant.

Miscellaneous.—Among others worth mention is *Fritillaria Sewerzowi*, a native of Turkestan, growing about 1 foot high, with broad, glaucous foliage and bell-shaped flowers of a greenish-yellow shade, having chocolate-coloured markings on the outside of the segments. *Colchicum crociflorum*, from the same country, with its Crocus-like flowers of white variously marked on the outside with reddish-purple, produced five to nine on each bulb; and the various Crocuses, of which the best are *C. Sieberi*, *C. biflorus*, and its variety *Weldeni*, of which there are two forms, one pure white, while the other is flushed with Lilac on the outside. *W. I.*

PLANT PORTRAITS.

AZALEA PERLE DE LOOCHRISTI.—Double white, with larger flowers than those of *Deutsche Perle*, but less regular in form. It was a sport from that well-known variety.—*Revue de l'Horticulture Belge*, March 1.

ROSE MRS. PETER BLAIR.—H.T., pale lemon-coloured flowers.—*Garden*, March 2.

ROSE GOTTFRIED KELLER (lutea var.).—*Rosen Zeitung*, February.

ROSE MME. ALFRED CARRIÈRE.—Noisette hybrid, pale yellow.—*Rosen Zeitung*, February.

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WASTON, Gardener to H. J. KING, Esq.,
Eastwell Park, Kent.

Medinilla magnifica.—This handsome stove shrub is worthy a place where sufficient room can be devoted to it, and though small plants look very well, it is only when they are fully developed that the species is seen at its best. Plants in pots may now be given a liberal shift, using lumpy loam and peat. Afford plenty of drainage material, as copious supplies of water will be necessary in the growing season. Place the plants in a light position in the stove, shading them during the hottest part of the day only, as the growth needs to be well "ripened" in the autumn. Syringe freely to prevent insect pests, and after growth is complete reduce the amount of water at the root, applying only sufficient to keep the foliage green and firm. The plant needs an atmospheric temperature of 60° in winter.

Cissus discolor.—Cuttings of this charming stove climber will root readily at this season if the young shoots are taken off and placed in the propagating frame in a brisk heat. When rooted, remove them towards the light and pot them as required. They will soon make good plants, either for growing on to become specimen plants or to train on wires under the roof glass. The lateral growths also are very beautiful and of value for decorative work of all kinds. A plant may also be cultivated in a hanging basket. *C. discolor* should be shaded from direct sunshine, or the delicate foliage will soon lose their brilliancy.

Fittonias, Zebrinas, &c.—Propagate from the young growths of *Fittonias*, *Pileas*, trailing *Zebrinas* (*Tradescantias*), putting the cuttings into 3 or 4 inch pots or shallow pans, which may then be used for furnishing the edges of stages in stoves and warm plant houses. Such plants associate well with *Selaginellas*, *Panicum variegatum*, and *Ficus stipulata* (*repens*). Continue to propagate small batches of this class of plants throughout the season, fresh young plants being always needed for decorative work.

General remarks.—Seedling plants of all kinds should be attended to as soon as they are fit to be handled, this being most necessary to prevent them being drawn in the seed-pans. *Gloxinias*, *Begonias*, *Petunias*, and *Lobelias* will all require attention, pricking them out into pans of light, sandy soil and shading them for a few days if there is bright sunshine, but keeping them always in a light position. More moisture must now be maintained in the stove, by damping down all dry surfaces several times daily, and syringing thoroughly overhead when closing the structure in the afternoon. Such treatment is the best preventive of thrips, red spider, and other insect pests.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE,
Bicton, East Devon.

Grafting.—The condition of the trees must be the guide to determine when to perform this work. In favoured spots trees will be ready for this operation now, but in others it must be deferred for perhaps a month. It will be a waste of labour to re-graft other than healthy, robust trees. The usual practice is to "head back" early in the year trees that are to be grafted, but they may be cut back now and grafted immediately with just as much success. Leave a small branch or two, or a little spray wood on well-established trees, to assist the flow of the sap.

Cleft or wedge-grafting is usually practised on stocks over 2 inches in diameter, and I have successfully grafted branches 3 inches in thickness by merely slitting down the bark of the stock and cutting the scion in a similar manner as for ordinary cleft grafting. Make a cross and longitudinal cut for this rind-grafting as if to insert a bud, the cut surface of the scion meeting the wood of the stock. In cleft grafting the stock must be opened with a mallet and chisel, and the scion slipped in ere the chisel is removed. Three, or even four, grafts may be inserted in extra large branches.

Tongue or whip-grafting.—This is the kind of grafting, usually adopted by nurserymen, and it is a most satisfactory method in the case of stocks that are not much more than an inch in diameter. Remove with a sharp knife, in a slanting direction upwards, a slip of bark and wood from 2 to 3 inches in length from the stock, and make a small notch or cleft quarter of an inch deep at the top, to insert a corresponding tongue made in the scion. The latter must now be prepared by making a cut to correspond with that on the stock, and the tongue to fit in the cleft of the stock and to hold the graft in position. The scion should be from 6 to 9 inches in length, and bear from two to four healthy buds, according to the degree of vigour in the stock. It is absolutely necessary that the bark of the stock and of the scion be brought into direct contact at least on one side. Clean, smooth cuts are essential on both stock and scion, and they should be made to correspond one with the other as nearly as possible: no dirt or soil must be allowed between the union of stock and scion. Last season's growths furnish the best grafts, although two-year-old wood can be successfully used, and they should be covered with damp moss while preparing the stock, &c. Broad straps of raffia are very suitable for tying the scions when in position, and they need to

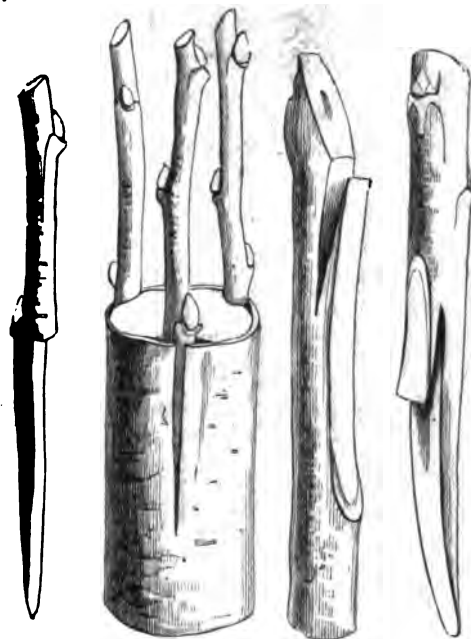


FIG. 86.
CLEFT OR RIND GRAFTING. TONGUE OR WHIP GRAFTING.

be bound moderately firm, but not so tight as to damage the bark. No air must be allowed to reach the grafted parts until a union has been effected, and, to exclude it, ordinary clay, free from stones and grit, worked into the stiffness of soft soap in water, must be applied forming it into the shape of an egg, so that the top and bottom be made quite air-tight. A little cow or horse-manure mixed with the clay prevents it cracking during dry weather. Grafting-wax is also suitable for excluding the air, and this material can be purchased in tins from nurserymen and horticultural sundriesmen. Apples and Pears are the two fruits usually grafted, and as the latter come first into leaf, these should be given preference.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow,
Cornwall.

Gravel walks.—The grass edges of walks should now be trimmed, and, to ensure an even edge, a garden line should be stretched along the verges, using plenty of pegs at the curves to maintain the proper sweep. Any bare or broken places should be made good by cutting a square of turf immediately behind the gap, lifting it with the turf-spade, and reversing the square so that the straight cut is in line with the verge. Reversing the turf makes a tougher

edge than drawing when the square of turf is drawn outwards. The blank space from which the sod came can be filled with spare pieces of turf that must be well beaten down. Before repairing gravel walks, examine them immediately after a heavy rain, and mark any places where the drainage is bad, so that it may be put into good order. A sprinkling of fresh gravel brightens the paths, and adds to the general good appearance of the garden. As prevention is better than cure, it will be wise, while the walks are still moist, to apply a dressing of some approved weed-killer, doing this when it seems likely that a few dry days will follow, so that the weed-killer will not at once be washed away from the roots of the weeds. Care must be taken that none falls on the grass by the side, or on any edging plants, and impress upon the person engaged in the work the poisonous nature of the compound, whether it be powder or liquid. The best treatment for a moss-covered walk is to reverse the top gravel for a depth of 2 inches with flat-tined forks, and after a few days to lightly rake and roll the new surface.

Carnations.—The border varieties which have been wintered in frames should now be planted in the permanent positions that have been previously prepared for them. Plant firmly, and tie each plant to a neat stake, so that it cannot be loosened by winds.

Sweet Peas.—Remove the lights as often as possible from the frames containing the seedlings, which were raised in heat last month, that they may be hardy enough to plant in their flowering quarters at the first suitable opportunity. When planted, the rows should immediately have sticks placed to them, and insert short branches of some evergreen on each side of the rows to further protect the plants from winds.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq.,
Norwood, Alloa, Clackmannanshire.

Early Vines, which have finished "stoning," will now require a steady atmospheric temperature of from 65° to 70° at night-time, and 80° to 85° during the day. Examine the bunches for the third time, and cut away with the scissors any berries where there is any appearance of overcrowding or where the berries are wedged together. Rub out all attempts at further growth, and pinch the sub-laterals at the first leaf, tying in young growths, and leaving a good expansion of foliage where there is sufficient light and space for it to develop properly. Keep the atmosphere of the house moist by damping the paths and borders twice each day. As soon as the berries commence to colour, ventilate the house more freely, and leave the top ventilator open a very little at night-time, unless the weather is unfavourable. At that stage the atmosphere should be kept much drier, decreasing the moisture by degrees. Keep a sharp look-out for red spider, which often makes its appearance just at the time the berries commence to colour. To exterminate this pest we sponge the under sides of the leaves with warm water and soft soap, which is an effectual cure if practised in time. If the pest is too far advanced for such treatment, use the syringe vigorously. Test the border with the proper tester, and if it is found to be dry, remove the mulching material to one side, and apply a good dressing of chemical vine and plant manure to the border, watering it afterwards and replacing the mulching. This watering will be sufficient until the Grapes have finished colouring, which will be from four to five weeks after the commencement, according to the variety.

Fig trees, which are now swelling their fruits, whether growing in pots or borders, will require abundance of water at the roots, otherwise the fruits will drop. Afford the pot Fig trees manure water twice each week, and mulch the inside borders with moss-litter manure. Tie in a sufficient number of young growths, and cut out those that are not required. Pinch the shoots at the fourth or fifth leaf. This pinching will result in a second crop in autumn. Do not allow the trees to carry too heavy a crop at one time. Admit air during favourable weather, and maintain a moist, warm atmosphere. Close the house early in the afternoon. Syringe the plants freely morning and night.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Duford, Surrey.

Deciduous *Calanthes*.—Where a number of the different varieties of *C. vestita* can be grown, also such beautiful hybrids as *C. Veitchii*, *C. V. alba*, *C. Victoria regina*, *C. bella*, *C. Sedenii*, *C. Harrisii*, *C. Burfordiensis*, *C. versicolor*, *C. Wm. Murray*, *C. Sibyl*, *C. Cooksonii*, *C. Phoebe*, *C. Oakwood Ruby*, and many others, a succession of flowers may be kept up for a considerable time, and with the addition of the later flowering varieties as *C. Bryan*, *C. Regnierii*, *C. Stevensii*, *C. Sanderiana*, *C. Turnerii*, *C. T. nivalis*, and *C. luteo-oculata gigantea* a continual show of bloom may be had from November till the beginning of April. Those plants which bloomed early will need attention as to potting immediately growth recommences, or before they make any roots. Do not allow the pseudo-bulbs to remain for a second year in the old soil, for, however fresh it may now appear, it will be in a condition unsuitable for the young roots during the growing season. Turn out the plants from their pots, and shake them out of the old soil. Shorten the dead roots to within 1 inch of the base of the pseudo-bulbs. By retaining this much, and pressing the potting material firmly around them, the bulbs may be kept in their place until the new roots obtain a firm hold of the compost. The old pseudo-bulbs from which last year's growth was formed may be divided, and the leading bulbs may either be grown singly in small pots, or several bulbs planted 2 or 3 inches apart in larger ones. It is essential that the drainage be free and open, and the soil in the same condition. Where this is properly attended to, there need be no fear of over-saturating them with water, of which they require large quantities, especially later on, when the new pseudo-bulbs are forming. Therefore, the pots should be filled to nearly half their depth with clean broken crocks, over which should be placed a thin layer of turfy loam or rough sphagnum-moss. The soil should consist of three parts turfy loam, the other part being made up with leaf-soil, finely chopped sphagnum-moss, broken crocks, and coarse silver sand, the whole being well mixed together. If the loam is not of a sufficiently fibrous nature, some extra peat and moss may be employed with advantage. The potting should be carried out as it is done with ordinary plants, keeping the base of the young growth just below the level of the compost, the latter being about half an inch beneath the rim of the pot. After potting the plants, place them in the lightest and best position available in the East Indian house. They may also be grown perfectly in the ordinary plant or Pine stoves, also in Cucumber and warm propagating houses. For a few weeks after potting is completed, the plants will need no water, merely damping round the pots until the growths begin to advance, and carefully sprinkling the soil until the new roots lay hold of the sides of the pot. After that time, the amount of water at the roots should be gradually increased. During the early stages of growth our practice is to carefully protect the plants from all strong sunshine, but as the leaves develop they are gradually insured to more light, the ventilation being increased accordingly. The back pseudo-bulbs may be used to increase the stock, and if inserted thickly into pots filled with sphagnum-moss will soon commence to grow. They should then be re-potted and treated as previously advised for the other plants.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Asparagus beds.—The manure that was applied in the winter has probably, by this time, become settled down to a solid condition, and should, therefore, be well forked over to lighten it the roughest and longest being drawn into the alleys. This latter may be afterwards used as a covering to protect the first "heads" (growths) from frosts which often occur when Asparagus first makes its appearance above ground, and when it is most anxiously sought for. If a dressing of Messrs. Willis Bros.' Asparagus manure be applied as soon as possible, and again when cutting ceases, a great improvement in the strength of the "heads" will assuredly follow. Seed should

now be sown for making fresh plantations, and for furnishing plants for forcing purposes. If forcing is carried out to any considerable extent from home-grown crowns, the quantity of roots required is enormous, and sowings must be made in proportion every year to maintain the necessary supply. If the ground is of a heavy nature, raised beds should be prepared, consisting principally of good, light soil, but if the soil is of a light description, and it has been liberally provided with some decayed manure during the winter, nothing further will be required except a dressing of wood ashes, which should be well raked-in among the surface soil. Sow the seeds thinly in drills drawn at 18 inches apart, and when the seedlings are several inches above the surface thin them out to about 6 inches apart, keeping the plantation scrupulously clear of weeds, as few crops are liable to suffer more from neglect in this way than Asparagus. Connover's Colossal is one of the best varieties, for although the Giant French is a little larger it does not prove so prolific in these gardens.

Cauliflowers that have stood the winter in frames, and have been thoroughly hardened, may now be planted out where they are intended to mature, choosing a south border, or a nice warm position in the garden, and one where the plants may be easily got at, as protection at night time may be necessary for some little time longer. Or they can be placed between rows of early Peas, in trenches provided with a good layer of dung at the bottom, and sufficiently deep to allow the top of the plants to be a little under the top of the ridges. These ridges, with the rows of Pea sticks on either side, will afford a certain amount of protection, but in the event of frost of such severity as we experienced on March 11, viz. 12°, additional coverings of mats placed horizontally across the trenches, or other improvised means must be adopted. If they are planted in another situation than between the Peas, plant them in similar trenches drawn at 2 feet apart, putting each plant at a distance of 18 inches from its neighbour. Continue to prick off spring-sown plants as soon as these are large enough, watering them in the morning whenever this is found to be necessary. A further sowing may now be made, and another next month of Veitch's Autumn, Walcheren, or other suitable varieties.

Brussels Sprouts.—Plants raised from seeds that were sown in a gentle heat last month, and that have been gradually shifted into cooler quarters, will now be ready for pricking out into a cold frame. Employ some rich soil as an inducement to quick growth. A further sowing should be made towards the end of the month for raising plants for the main crop, thus providing them with a good long season to develop and mature.

PUBLIC PARKS AND GARDENS.

By W. W. PRITCHEW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

FISH-HATCHING—Continued from p. 170.

Males and females sorted and put into tubs.—As soon as it is found that the trout are working up stream, the decoy pond is netted out each morning. All those caught at one time are put into large tubs placed in readiness, and as soon as the pond is cleared they are all examined and selected, males being put into one tub and females into another. The small fish are put back into the stream, as only the best and largest are retained for spawning purposes. The selected females are first examined, and any which are unripe are put back into a pond for a few days longer to mature, while those which are ready to give off their eggs have them stripped from them.

Taking eggs from females and fertilising.—This, as may be imagined, is a very delicate undertaking, which has to be done rapidly and carefully, so that the fish is not in any way injured after it. The trout to be spawned is taken out of the water and held over a dry basin, into which the eggs are discharged by means of a gentle pressure of the ball of the thumb being applied in a downward direction to the fish just below the throat. As the ova pass from the fish, the thumb is gradually moved down to the place of exit until every egg has been given off. When a few thousand ova have been taken from one or more fish, a male

fish is milted over them, and the whole mass of eggs stirred up. As soon as the fish have been spawned they are put into a salt bath, from which they are returned to the stream, none the worse for their experience in the hands of their captors. A remarkable circumstance in connection with the artificial process of fertilising trout eggs is that the less water there is about them the quicker and surer does fertilisation take place. After the milt has been applied to the eggs water is poured over them, and not before.

Cleansing of ova.—The ova must not be finally laid down in the hatching trays until the surplus milt left about them and all dirt is thoroughly washed away, otherwise a fungoid growth soon makes its appearance and very quickly destroys the eggs. For about 24 hours after the ova has been taken from the fish it can be moved about in water almost with impunity, but as soon as that period has passed they cannot again be interfered with until the embryo has become what is known as "eyed."

The period of incubation all depends upon the temperature of the water passing over them. As in the case of plant seeds, it is said there is a minimum, optimum and maximum temperature governing the periods of incubation of fish ova. In one of our hatcheries where the temperature of the water this winter has been 48°, the ova was 86 days in hatching. In the open-air hatchery the water temperature is always 50°, and the ova only takes 45 days' incubation—in fact, the young trout in this hatchery are feeding before the ova in the other hatchery are hatched, even when it is laid down on the same date at both places.

Feeding of Alevis.—For about the first four weeks of their existence the young trout require no feeding, as their yolk sac contains sufficient nutriment to maintain them for that period. By the end of that time, however, the sac becomes absorbed and they begin to feed, when the difficulties of fish rearing may be said to first actually commence. Prior to this all is plain sailing, but as soon as feeding has to be taken in hand the death-rate among the young fish goes up by leaps and bounds.

Stocking of streams.—Once the young trout are able to feed the sooner they are put into the rearing ponds the better. This is also a good time to stock streams with them, when it is intended to do so with fry. Stocking with trout at this stage results in a great many dying off while still young, but as they cost so little up to that time, if only a very small percentage succeed in establishing themselves, a great advantage is gained with very little expense.

Rearing ponds.—The provision of plenty of rearing ponds is very necessary if any appreciable measure of success is to be attained in rearing young trout, and in a public park this is one of the greatest difficulties. These ponds are best made narrow and long, say, 100 feet long by 6 feet wide, running shallow at both ends, and as deep as possible in the middle. Each pond should be so constructed that no fish can possibly escape from the one to the other. They should also be connected by shallow winding streamlets, so that the water passing from one pond to another gets perfectly aerated in its passage. During the greater part of the season the ponds should be constantly covered with screens to prevent their becoming overgrown with fresh-water algae, which, when too abundant, have a very detrimental effect upon the young fish. The fish should be netted out every few weeks, and the stronger ones selected from the weaker. If this is not done the bigger fry will worry the weaker ones, and even feed upon them, with such results that the numbers will very rapidly diminish.

Nature of food.—The food we use for the young fish with the most satisfactory result is very finely-ground-up sheep's liver, mixed with boiled oatmeal. Although it is wise to give as much variety as possible in the way of food to them, we find they hardly ever tire of this mixture.

Cleanliness is the motto of every successful fish breeder—clean water, boxes, ponds, and food are all essential for success. Anyone who may be thinking of starting a trout hatchery cannot commence too soon in looking out a suitable site for it and making all the preparations necessary for carrying on such an undertaking during the next season.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, MARCH 27—
Roy. Bot. Soc. Exhib. at Regent's Park.

FRIDAY, MARCH 29—Good Friday.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—48° 8'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, March 20 (6 P.M.): Max. 55°; Min. 46°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, March 21 (10 A.M.): Bar., 30° 4'; Temp., 48°; Weather—Bright sunshine.

PROVINCES.—Wednesday, March 20 (6 P.M.): Max. 52°, S.W. Ireland; Min. 42°, Scotland N.E.

SALES FOR THE ENSUING WEEK.

MONDAY—

Border Plants and Bulbs, Perennials, Roses, Azaleas, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY—

507 cases Japanese Lilliums, also Miscellaneous Bulbs, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

WEDNESDAY—

Herbaceous Plants, Lilliums, Azaleas, Palms, Plants, &c., at 12; Roses and Fruit Trees at 1.30 and 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

Roses, Lilies, Azaleas, &c., at Steven's Rooms, King Street, Covent Garden, W.C., at 12.30.

**The
Veitch
Medallists
of the
Year.**

To the small but select body of those on whom the honour of a Veitch medal has been conferred may now be added, taking them in their alphabetical order, Mr.

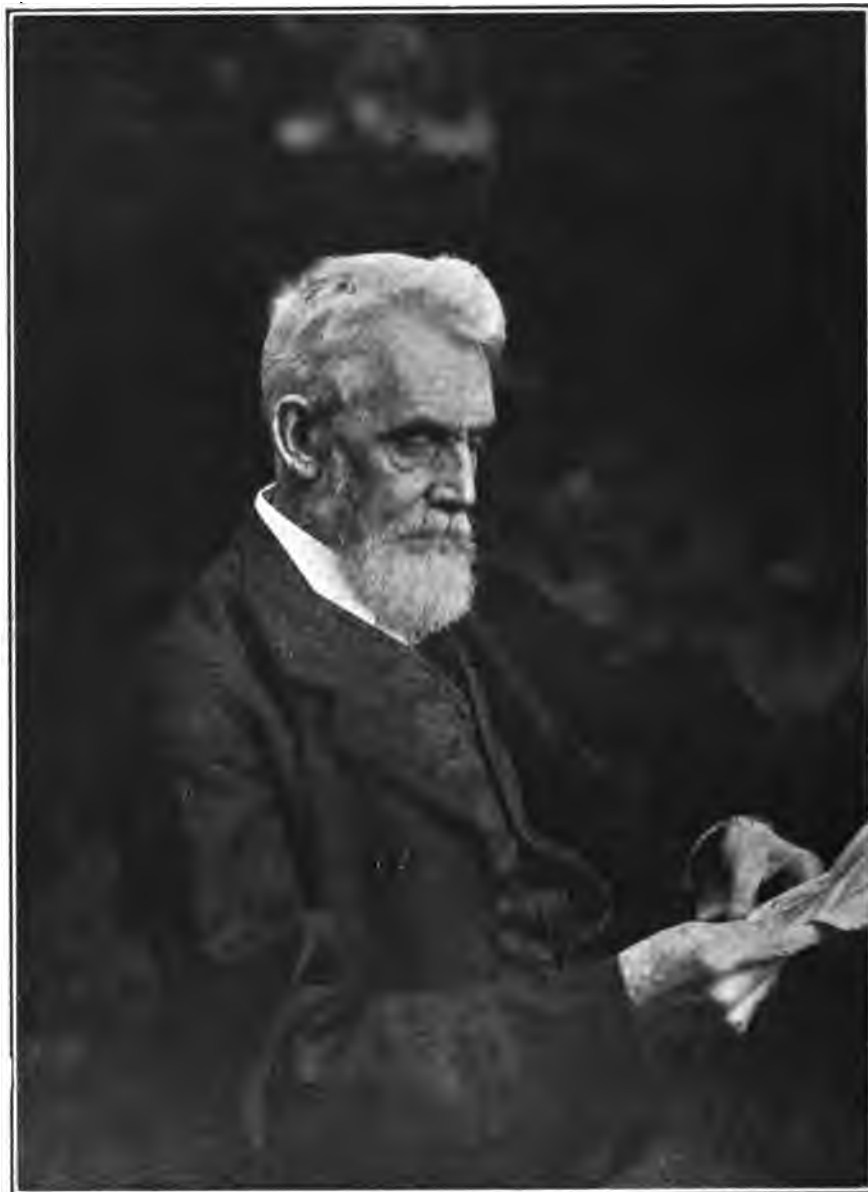
J. G. Baker and Mr. Worthington Smith. The first-named is a distinguished botanist, the second an eminent botanical artist, an engraver, a keen student of fungi, a well-known archæologist. As much of their work has been known through these pages, and they take rank with Lindley, Paxton, Berkeley, Westwood, Hooker and others who have used our columns for the benefit of horticulture, we are confident that many who are conversant with their work but who may not know them personally will acknowledge that the trustees have made a good selection, and will feel an interest in the portraits we now lay before our readers.

Mr. Baker began his botanical career by a critical study of British plants and their distribution. A wider field was opened out to him when he became attached to the Herbarium of the Royal Gardens, Kew, of which establishment he was eventually curator, and remained in that office till his retirement. Of the enormous amount of work that he did in that capacity it is not necessary for us to speak. It must suffice to say that Mr. Baker early

recognised the necessity, for horticultural purposes, of studying wherever possible the living representatives and of not confining himself to the examination and comparison of herbarium specimens. He soon found that the Monocotyledonous plants, such as the Lilies and their allies, specially demanded the critical examination of living plants, inasmuch as they were often, and of necessity, badly preserved in herbaria. And so it was that monograph after monograph was prepared of Lilies, of Irises, of Amaryllids, of Musas, many of them published in our own columns and still more in the *Journal of the Linnean*

the cultivator in search of information, a practised hand can fill in the details for himself. It must not, however, be thought that the synthetical was the only aspect of Mr. Baker's work. Those who know what he has done in unravelling the critical forms of Brambles, Roses, and Hawkweeds, will appreciate his powers of minute analysis as much as his broad grasp of generalities.

If we feel that we are too intimately associated with Mr. Baker to be altogether impartial judges of his work, what shall we say of Mr. Worthington Smith? To him this journal has been largely indebted for its illus-



WORTHINGTON G. SMITH (VEITCH MEMORIAL MEDALLIST).

Society. Taking up the study of Ferns where Sir William Hooker had left it, Mr. Baker also soon became an authority on those plants. His object in all cases was to bring into prominence the principal groups so as to facilitate the researches of his successors. We have heard him compare his work to that of a maker of a map of a large and crowded city. His first care was to lay down the principal thoroughfares, and to leave the minor details of secondary streets, &c., to be filled in as opportunity might serve.

This is the kind of work most useful to

trations of plants for over 40 years. As a botanical artist he has had no rival since the death of Walter Fitch, who was also a contributor to our columns. Beauty and firmness of outline, secured by long practice as an engraver, and accuracy of detail, rather than impressionist effect, characterise his work, and thus his drawings are far more valuable for practical purposes than those which aim at general and often fleeting effect.

Of his work among fungi we need not here dwell, the Natural History Museum contains very numerous illustrations of his skill,



Photo by E. J. Wallis.

THE LAKE, ROYAL GARDENS, KEW.

nor can we here do more than allude to his researches into the manners and customs, the weapons and tools of prehistoric man; indeed, his position as an archæologist is an assured one, and his published works on these subjects are permanent assets in the library of the student.

There is one feature of Mr. Smith's character well known to his friends, but perhaps not so generally recognised by those whose knowledge of him is less intimate. We allude to his sense of humour. This finds expression at all sorts of times and on all occasions. By way of example, we repeat an illustration showing the difficulties under which our artist sometimes had to labour when adequate facilities for the execution of his task were not forthcoming, and another showing the device adopted by the late G. F. Wilson to preserve his Peas from the too insistent attentions of the sparrows, which is referred to again in this column in a letter (now reproduced) purporting to have been written by the cat.

We refrain from saying more of our colleagues and friends, as such publicity might be unwelcome to them, and who knows how the artist would avenge himself at our expense! Let us conclude by congratulating them on the honour conferred on them and by expressing the hope that our columns may long continue to be enriched by their productions.

LETTER FROM THE LATE MR. WILSON'S CAT.

"Weybridge, 1872."

"DEAR EDITORS.—When your woodcutter was down here lately, he advised me to send you a rough scratch of my position in Mr. W——'s garden, and he requested me at the same time to briefly tabblylate for the purrusal of your readers, how I purrfect my master's plants from being potted by small birds. I can only trust your readers will believe my a-mews-ing tail!

"Here is the sketch (fig. 86) as well done as my talont will admit. You see I live in a nice clean beer-barrel purrposely selected for me, so that whenever I 'wire-in' to rest at night my felines revert to my master's favourite ale-o!

"This rough scratch explains better than any words how I 'clear a bed,' and daily practice the art of 'forcing' and 'striking.' I also teach the birds the equally useful art of 'cutting.' The cat-kin tribe are known always to be well 'up to the scratch' in a garden; so I may say as a concluding claws that I never encourage any pussylaninuous feelings towards sparing sparrows, or purrfecting small birds. May such felines always be fur from yours truly, Mr. W——'s Cat."

OUR SUPPLEMENTARY ILLUSTRATION.—The charming view of the lake in the Royal Gardens, at Kew, shown in the supplementary illustration to the present issue, affords an instance of the effect produced amongst other vegetation by fastigate or upright growing trees. The picture may appropriately be studied in connection with Mr. BEAN's article on this subject, and the accompanying illustrations on another page.

ROYAL BOTANIC SOCIETY.—The first of the special monthly exhibitions of plants and flowers in the Royal Botanic Gardens, Regent's Park, London, will take place on Wednesday next, March 27.

THE NATIONAL CARNATION AND PICOTEE SOCIETY (southern section) has issued its thirtieth

the artificial formality dear to specialists of the old school. Fortunately there is scope for both groups of Carnation lovers, and as the society endeavours to cater for all there is no reason for complaint on this score. It is, we think, to be regretted that a similar catholic spirit was not manifested in the case of the tree or winter-flower-



FIG. 85.—WORTHINGTON G. SMITH WORKING UNDER DIFFICULTIES.

report, containing a list of prize winners in last year's exhibit and the schedule of prizes to be competed for in the R.H. Hall, Vincent Square, on July 24 of the present year. The society shows signs of progress in providing for the exhibition of flowers in their natural state and in gradually abandoning the childish practice of exhibiting the flowers with cardboard collars. The increased and increasing popularity of the flower is the best evidence that the great bulk of flower lovers dislike

ing Carnations; that an "extra special" society should have to be formed to include the devotees of these very popular flowers, because the "special" society was too limited in its scope to admit them, is one of those mysteries that no outsider can comprehend. With fortnightly meetings and special committees of the R.H.S. which could be multiplied if thought requisite the use for special societies save for commercial purposes seems less than ever.



FIG. 86.—A FELISITOUS MODE OF TRAINING A MEMBER OF THE CAT-KIN TRIBE.

AMERICAN WINTER-FLOWERING CARNATIONS.—A grower of these varieties states in *Möller's Deutsche Gartner-Zeitung*, No. 10 of the present year, that, contrary to the usual practice with ordinary winter-flowering varieties, of taking cuttings in late summer and autumn, keeping the young plants in cold houses and pits during the winter, and planting them out in the spring, the American winter-flowerers are struck from cuttings taken in the following seasons for flowering in the greatest quantity: in autumn, winter, and spring. Those plants that are struck in the interval between January and March are generally cut back twice, and those struck in April only once. American varieties develop much more rapidly than the European ones, and flowering, according to varieties, begins in September and October. The best shoots for taking as cuttings are those that appear at the base of the flower stems, and care is taken to remove only a few of these, as those that are left soon throw up flower shoots after the first flower shoots are removed. One of the evils which accrue when the American varieties are kept cool in the winter season is that the growth is unnaturally checked, the base of the stems becomes woody, which is the first stage of the dreaded decay of the stems—a disease that has brought these Carnations into some degree of disrepute. The right kind of culture is that which aims at maintaining the plants in full growth. When cuttings are taken in the autumn and much warmth afforded the plants, they become weak, and the tissues soft, and the germ of many evils laid.

SALE OF ORCHIDS AT WEST POINT.—A sale of 122 lots of duplicate plants from the collection of S. GRATRIX, Esq., West Point, Whalley Range, Manchester, was held at West Point by Mr. HAROLD G. MORRIS, of the firm of PROTHEROE & MORRIS, 67 and 68, Cheapside, London, on Thursday, March 14. The sale realised a total of £2,208. The highest price for a lot was 300 guineas, the plant being *Odontoglossum crispum* "Britannia"; a small plant of *O. crispum* Mundy-anum, with two pseudo-bulbs, realised 150 guineas, and other high prices were *O. crispum* Luciani, 180 guineas; *O. crispum* "Mrs. A. Warburton," 38 guineas; *O. crispum* Lindenii, 50 guineas; *O. crispum* "Mary Gratrix," a charming white form, 36 guineas. Among *Cypripediums* C. The Baron secured 120 guineas; four plants of C. Minos Youngii realised from 17 to 38 guineas each; C. Leonie, Gratrix's variety, 55 guineas; two plants of *Cypripedium* Emperor of India, 20 and 22 guineas respectively, and upwards of 20 guineas were obtained for other *Cypripediums*; the older favourites, such as good forms of C. euryades, appearing to have increased in value; a plant of C. euryades magnificum, New Hall Hey variety, reaching 46 guineas. White Cattleyas were also in favour, and of these C. Hardyana albens realised 70 guineas. A small plant of *Lycaste Skinneri armeniaca* fetched 21 guineas, and small plants of L. Samuel Gratrix and Mary Gratrix 10 and 10½ guineas respectively.

RETIREMENT OF MR. H. J. CLAYTON.—"An Old Pupil" writes: "I am sure I shall express the feelings of many horticulturists in stating how sorry I am to learn that Mr. CLAYTON's connection with Grimston Park Gardens, Tadcaster, Yorkshire, is about to cease. He has been head gardener there for 35 years, and his retirement will take place on April 16. Having spent several years of my life under him there I can testify that a more considerate man to his fellow helpers in keeping up the well-known reputation of the gardens could not be, but he was also strictly just to his employers. I know it will be a great wrench for him to leave his work at Grimston, having often heard him remark that he thinks he has held close communion with every bough and

twig in the beautiful, well-stocked gardens and grounds. As a practical gardener, to use his own expression, he did not care to put his garden soil into a few small flower pots, but delighted in the trees and shrubs. Mr. CLAYTON's long sustained interest in the garden charities is well known. I was living at Grimston in 1887 and well remember with what keen interest he followed the inception of the Royal Gardeners' Orphan Fund. He has been, on and off, churchwarden, &c., for nearly 80 years, having also managed a small Sunday school on one side of the parish during the whole time. Being in his 65th year it is out of the question his securing another situation, although fairly well in health. He has taken a house in the village of Ulleskelf, which is a township, like Grimston, in the parish of Kirkby Wharfe, and hopes to get some employment as a horticultural adviser, &c., &c. I am sure he will have the good wishes of all who have known him." Mr. CLAYTON is an old and valued correspondent of this journal, and on many occasions he has kindly sent us specimens from the Grimston Gardens that have proved his cultural skill. Our correspondent, "An Old Pupil," mentions that Mr. CLAYTON "followed" the inception of the Royal Gardeners' Orphan Fund, but it should be remembered that he and the late Mr. PENNY were the first to suggest simultaneously the formation of the fund.

LONDON'S TOBACCO CROP.—"In spite of frosty nights and sunless days London's tobacco crop under glass at the Royal Botanic Society's gardens in Regent's Park is getting on apace. The crop is not large; it is purely experimental. But to make it more interesting a large number of the best known varieties of the tobaccos of commerce are included. Mr. HAWES, the society's head gardener, reports that all the plants, whether from Kentucky, Virginia, Havana, or from Turkish, German or Dutch seed, are doing well, the adverse weather notwithstanding. Some of the seedlings are picked out in separate flower pots in which they will get individual treatment and the maximum of light. In another five or six weeks it is confidently asserted that the growing tobacco will show the distinctive characteristics of the various sorts included in the experiment. The public will have a chance of seeing this novel crop at the Royal Horticultural Hall in April on the occasion of the 3rd International Tobacco Trades Exhibition." Tobacco.

SPECIAL SPRING NUMBERS.—As winter gives place to spring, so the garden-periodicals bud out and manifest signs of increasing energy and progress pleasant to witness. The *Scottish Gardener* is one of the youngest of the fraternity, and, as becomes its age, is fresh and vigorous. The spring number is full of good, sound, practical articles, and is adorned with numerous portraits of practitioners who, as we know, well maintain the reputation of Scotch gardeners. A note informs us that this is "the first attempt at a special number." A glance at its pages is sufficient to show that the attempt has been a highly successful one. The *Gardeners' Magazine* has slightly altered its size, improved its "get up," and in various ways proves its determination to keep abreast of the times. The *Journal of Horticulture* caters for the professional gardener, whose requirements are well looked after. It is doing good work in stimulating and encouraging the rising generation. The *Gardener* is bright and lively, and full of information for the benefit of the amateur. The amateur is indeed well provided for, as among the number of inexpensive journals intended for his benefit are included *Amateur Gardening*, an excellent pennyworth; *Gardening Illustrated*, crammed with information; *Garden Life*, well illustrated; the *Gardening World*, replete with trustworthy information; and others, all good in their way, whether they issue special spring numbers or not.

CAN PLANTS OBTAIN NITROGEN FROM THE AIR?—When it is remembered in how very large a proportion nitrogen enters into the composition of the atmosphere, it is not to be wondered at that the idea should be entertained that plants must be able to avail themselves of the supply by which they are so copiously surrounded. The researches and experiments of BOUSSINGAULT and of LAWES and GILBERT, however, are almost universally accepted as proving that the plant does not absorb free nitrogen from the atmosphere. Lately, however, Mr. THOMAS JAMIESON, the "Director of Research" of the Agricultural Research Association of Aberdeenshire, whose report for the year 1906 is before us, has strenuously advocated the opposite opinion, and asserts positively that the nitrogen of the air is "directly absorbed and fixed by plants" by means of specialised organs adapted for the absorption of nitrogen. Demonstration of these statements is, says he, afforded by "strictly controlled culture of plants of a gain in weight of nitrogen due to absorption from the atmosphere." How and by what means the nitrogen is dissociated from the oxygen is not explained. This matter is one for the chemist to determine. The physiologist will require further proof than is offered by Mr. JAMIESON, that sundry hairs which are common to a very large variety of plants have anything to do with the absorption of nitrogen. That Mr. JAMIESON should find nitrogenous compounds in those hairs is not remarkable, seeing that they must contain in their active state a considerable amount of protoplasm, whence that nitrogen came, is not to be proved by mere assertion that it entered the plant by means of these hairs, nor do we imagine that the "main work of Rothamsted" (mis-spelt throughout Mr. JAMIESON's report as Rothamstead) is likely to be "overturned by the new doctrine." There are other statements in former reports and repeated in this one, such as that an "aperture exists at the extremity of the root hairs," and that "the three feathery-like structures in the flowers of cereals and grasses are not parts of the female organ of the plant (as formerly supposed), but are brushes that serve to expel the male organs to the air for diffusion of the pollen all around. . . ." We find it difficult to accept these statements as correct, though we are aware that an aperture has occasionally been seen at the end of a root-hair, as by GASPARINNI. We must remain, till further evidence is afforded, in the position of those teachers "who have to receive the material for instruction from the results of investigation properly established, and also that, if they fail to do so, by assuming greater knowledge than the investigators themselves, or from other improper reasons, the result is—that their students suffer." In view of the great practical importance of the subject, we could wish Mr. JAMIESON's observations and inductions could be confirmed.

BOUNTY FOR THE STUDY OF SOILS.—The Worshipful Company of Goldsmiths has made a donation of £10,000 to the Lawes Agricultural Trust (Rothamsted Experimental Station) to be devoted to research in connection with the soil, and to be known as the Goldsmiths' Company's Fund for Soil Investigation.

THE DECIMAL SYSTEM.—At the private view on March 13 of the new premises in Kingsway, Messrs. J. GRIFFIN & SONS, LTD., displayed in their vestibule a memorial in favour of the universal adoption of the decimal system, which is signed by such a diverse section of the community—including physicians, journalists, clergymen, educational authorities, barristers, solicitors and photographers—as to encourage us to think that this system will eventually be adopted in this country.

POLEMONIACEÆ.—A family to which the Phlox, the Cobæa, the Cantua, the Gilias, and various other garden flowers belong, is naturally one which has a special interest for botanist-gardeners. On this account it is of interest to note the publication in the *Pflanzenreich* of a special monograph by Mr. A. BRAND, of the Polemoniaceæ. The text is mainly in German, but the descriptions of the genera and species are in botanical Latin understood by specialists everywhere, and illustrated by woodcuts which appeal to all and sundry whatever their nationality may be. The work is mainly of botanical interest, but as we have said, owing to the large number of cultivated forms it appeals to horticulturists also. Thus six species of Cobæa are mentioned, three of which are figured. Polemonium includes 18 species, many of which are critically analysed so that various sub-species and varieties are enumerated. Forty-eight species of Phlox are described and tabulated; of *P. paniculata* three garden varieties are enumerated. As the result of crossing *Phlox maculata* and *P. paniculata* a whole host of garden forms are enumerated, includ-

BRAZILIAN ORCHIDS.—M. COGNIAUX, whose ability is only equalled by his industry, has published in the Bulletin of the Royal Botanical Society of Belgium some notes additional to his monumental enumeration of the Brazilian Orchids in the *Flora Brasiliensis* recently completed. During the progress of that work and since its publication much further information has been obtained, a digest of which is given in M. COGNIAUX's memoir. Many additional newly discovered Brazilian species are described, and an enumeration of the species found in neighbouring countries such as the Guianas, Paraguay, Uruguay, and the Argentine Republic is afforded. Some notes on the geographical distribution of the species is given from which it appears that the entire number of species known up to this time in Brazil is 1,795, 172 of which are described by M. COGNIAUX as new, 1,476 are Brazilian, and 819 extra Brazilian. Of the 1,476 species recorded from Brazil 1,188 are exclusively Brazilian, 288 being found also beyond the confines of that country. *Pleurothallis*, *Epidendrum*, and *Onci-*

wages from \$50.00 to \$60.00 per month. Should any young men care to venture to the United States and come to New York they would find that almost any seedsman would have upon his books openings for young men as above, or if they should communicate with the *Chronicle* you could put them in communication with me, and I should be pleased to furnish them with further information. *Harry O. Bunyard, 342, West 14th Street, New York.* [We should not care to undertake the responsibility of advising anyone to seek work in a foreign country, but we will give such information as we can. Our own colonies are in many ways preferable to the United States. —ED.]

THE FLOWERING OF THE ALMOND.—The first flowers on an Almond tree in a favourable position in Wandsworth, south-west of London, expanded fully on Wednesday last, March 20, as against February 28 last year, March 7 in 1905, and March 21 in 1904.

HOW ENGLISH WORDS CREEP INTO USE IN FOREIGN LANGUAGES.—It is a curious thing to note the adoption of English words in languages allied to our own, and possessing their counterparts, although not so convenient or expressive. Especially is this the case with things connected with sport, with horses, horse racing and dogs. The latest that has come under our notice is Poney-Rasenmäher (mowing machine of a size suitable for being drawn by a pony). The proper German word for pony is *klepper*, or *kleins pferd*; but the advertiser, LUDWIG MÖLLER, of Erfurt, adopts the word pony to make his advertisement intelligible to his countrymen.

MANUAL OF FORESTRY.—Dr. SCHLICH's *Manual of Forestry* has, we are glad to see, rapidly attained to the dignity of a "classic." The fourth volume of the manual devoted to forest-protection is now before us in a second edition (BRADBURY, AGNEW & Co). This is the work of Mr. FISHER, and consists mainly in a free translation of Dr. HESS' German work entitled *Der Forstschutz*. Mr. FISHER is more than competent to have given us an original work suited especially to British requirements, but in any case those interested in forestry are under great obligations to him for what he has done. The subject matter deals with the necessary protection of forests, and it is humiliating to find that "protection against man" occupies so large a portion of the volume. The protection of the forest against animals of all kinds also fills a large portion of the book. The description of the various insects and fungi destructive to forests is very valuable and should be in every forester's office for reference. Atmospheric and climatal influences are also discussed, so that the whole forms a treatise which will be of the greatest service to every practitioner. The fact that it is in a second edition confirms our assertion and absolves us from the necessity of alluding in further detail to its contents.

Publications Received.—*Notes sur les Orchidées du Brésil et des Régions Voisines*, par Alfred Cogniaux. Etat Indépendant du Congo. *Enumeration des plantes récoltées par Emile Laurent*, par E. de Wildeman. Fascicule IV., pages IX.-CXX., and 355-450; pl. CVII.-CXLII.—*Bulletin du Jardin Impérial Botanique de St. Petersburg*. Tome VI., Livraison 5-6.—*Life and Flowers*, by Maurice Maeterlinck. George Allen. —Board of Agriculture and Fisheries, Leaflet No. 180. Dodder.—Leaflet No. 182. *Crimson Clover*.—Agricultural Statistics, 1906. *Return of Produce of Crops in Great Britain*. "Judging by the yield per acre, 1906 ranks as one of the most satisfactory years on record for the principal farm crops. Every crop, with the exception of meadow Hay and Hops, was returned as above the average."—*Photographic Monthly*. March. An article herein by Mr. Crabtree suggests that panchromatic photography may be widely used in the future for flower-photography.—*The Garden City*. March. Includes a highly satisfactory report of the association during 1906.—*Schedule of Prizes and Rules of Southend-on-Sea and District Horticultural Society*. Summer show, 10th July. Chrysanthemum show, 5th and 6th November.



JOHN GILBERT BAKER, F.R.S. (VEITCH MEMORIAL MEDALLIST).

ing *P. decussata* and 51 varieties mentioned in the journal of the R.H.S. 1903, p. 649. *Phlox pilosa* is mentioned as the first of the genus to be cultivated in England under the name of trumpet-flower at the end of the 17th or the beginning of the 18th century. A large number of garden forms of *P. Drummondii* is also tabulated. *Gilia*, including *Leptosiphon*, is treated in the same way, the author being comprehensive in his definition of genera but analytic in his treatment of species. A very comprehensive index is added, so that the book will be most serviceable to the student of this family who is interested in the cultivated forms as well as in the wild types.

DILLENIUS.—The Oxford University Press has published the *Dillénian Herbaria*: an account of the Dillénian collections in the Herbarium of the University, together with a biographical sketch of Dillénus, selections from his correspondence, notes, &c., by G. CLARIDGE DRUCE, Hon.M.A., Curator of the Fielding Herbarium, edited, with an introduction by S. H. VINES, M.A., F.R.S., Sherardian Professor of Botany in the University.

dium have each over 100 representatives in Brazil, while there are 44 species of *Catasetum* and 83 species of *Cattleya*. Brazil is so vast, equal to 5-6ths of the area of Europe or fifteen times larger than France, that extensive districts are still botanically unexplored. This is particularly the case in the provinces of the centre, the west, and the north, so that no doubt many additions have yet to be made to our knowledge of its Flora. In the meanwhile the gratitude of botanists has been more than amply earned by M. COGNIAUX, who modestly speaks of his 15 years' labours as being as little incomplete as he could make them.

GARDENERS IN THE UNITED STATES.—At this season of the year and far into the spring, there is a continued demand for young men as foremen and assistants on private estates. Unfortunately there are more positions than there are young men to fill them. [How different to the conditions here. —ED.] While it is against the contract labour law of the United States to employ any one from foreign countries direct, any young man coming to New York at this season of the year would have no difficulty in securing a position and obtaining

VEGETABLES.

NEW ASPARAGUS BEDS.

ALTHOUGH well-prepared beds of Asparagus, if kept free from weeds and top-dressed yearly with rich manure, salt, and an occasional sprinkling of nitrate of soda, will produce good "heads" in plenty for a great number of years, it is nevertheless advisable to renew certain of the beds at intervals. In some gardens the soil is naturally adapted to the growth of Asparagus and very little more is needed to produce satisfactory "heads" than good culture, but when the land is clayey, stubborn and ill-drained, much needs to be done if a good crop is desired. A rich, deep, sandy loam, containing some well-decayed manure, suits Asparagus, therefore, if the soil is of a stiff, heavy nature, it should be thoroughly drained—for nothing is more fatal to the plant than stagnant moisture—and well cultivated to a depth of 2½ feet. When preparing the ground for planting, set out the beds with stakes, allowing a width of 6 feet for the bed, which will be sufficient for planting three rows. Next dig out the soil to the required depth; if the land is wet, 2½ to 3 feet will not be too much, and if it requires draining, place a couple of drains in the trench the whole length of the bed. At the bottom of the trench place a layer of about 9 inches of old broken bricks, clinkers, or similar material, and on this several inches of long manure. If the soil is of a heavy nature, mix plenty of road scrapings, leaf-mould, or other material that will lighten it, and add sweet manure to the soil as the filling of the trench proceeds. The bed should be raised several inches above the ground level. Although the best time for making new beds of Asparagus is in the autumn, they can also be prepared, with success, in March.

I have just prepared two very large beds on land that needed no artificial drainage, nor the addition of any material for lightening its texture, it being naturally light and full of grit. The site was staked out, the soil opened to a depth of 15 inches, and the subsoil was trenched for a depth of 18 inches. Some manure was incorporated with the subsoil, and over this was placed a good layer of rotten manure, and next about 6 inches of the soil with a sprinkling of salt. The bed was made 9 inches above the ground level, and the surface soil may be turned over again before planting, but this will be decided upon later. I intend planting three rows of Asparagus in each bed, and this will allow a space of 2 feet between the plants each way. Planting will be done at the beginning of April, just as the young growths are developing. Cultivators who wish to raise their own plants can sow the seeds in drills drawn 8 inches deep on the beds where they are to remain. When large enough thin the plants to the required distance. The seeds can also be sown in boxes, in which case they should be dropped into holes 3 inches apart, and their germination hastened in frames to ensure the seedlings being ready for transplanting in May. *H. Markham, Wrotham Park, Barnet.*

KALES AT WISLEY.

THE following members of the Fruit and Vegetable Committee of the Royal Horticultural Society, Mr. W. Bates (chairman); and Messrs. Lyne, Willard, Beckett, Reynolds, H. J. Wright, Foster, Jaques, and A. Dean journeyed to Wisley Gardens on Friday, 8th inst., to inspect a trial of Kales. The whole of the plants of the broad-leaved or Buda, and the Asparagus sections had succumbed to frost or disease, and, remembering how some years ago a fungoid attack swept off all this section of Kales at Chiswick, the general opinion was that fungus (bacterium) and not the weather was the primary cause of failure. The taller and stronger-growing broad-leaved types, including Chou de Milan, Thousandhead, and Jersey Cabbage were comparatively unharmed, and of

these the Chou de Milan was the best, although it was not a really good stock. Next were inspected three stocks of cottagers' Kale, and of these the best was one having a greater proportion of green leafage than the others, and a more compact habit. Some hearting Kales seen were not in good condition, and they did not commend themselves to the committee. Neither did the few stocks of variegated Kales, nor the purple curled Kales. Of this latter type, undoubtedly the best was the dwarf purple variety Arctic. A very curious and novel Kale is Chou de Russie. This forms almost hearting heads of deeply cut or lacinated leafage, and produces sprouts in great profusion on the stems. It was selected by the committee for award (see p. 195). The Scotch curled green Kales were numerous, and these included both tall and dwarf forms. A breadth of the old tall Scotch variety showed how greatly improved were the modern stocks of this type. Ultimately, the following varieties were recommended for Awards of Merit:—Tall green Scotch (James Veitch & Sons); Dwarf Moss, green curled (James Carter and Co.); Cottagers' Kale (James Veitch & Sons), Chou de Russie (James Carter & Co.); and Selected Medium, green curled (Kent and Brydon). Afterwards the committee inspected the gardens generally. A sowing of some 150 stocks of Onions has been made for comparison and trial. Ground has also been prepared for a trial of Cactus Dahlias. Special interest was displayed in a bush of *Erica lusitanica* codonodes, 6 feet in height, in full bloom, and in the young vines in the new vinery, all of which have made fine rods with short joints. *A. D.*

TREES AND SHRUBS IN SCOTTISH GARDENS.*

(Concluded from page 169.)

MONREITH.

Monreith is situated near the end of the promontory in Wigtownshire that juts out towards the Isle of Man, between Luce Bay and Wigtown Bay. Being almost on the extreme southwest of Scotland, with water on three sides, the climate is necessarily mild and moist, and suited to many forms of tree and shrub growth. How rapidly some of these grow will be seen from the following notes. Monreith is the home of Sir Herbert Maxwell, who, among his many interests, regards forestry, I believe, as not the least.

Pinus insignis, planted in the winter of 1883-4, is now 65 feet high, its growth clean and erect, and that of a single year sometimes over 4 feet in length. *P. monticola*, planted in 1875, is 63 feet high and 4 feet 5 inches in girth. *Cupressus macrocarpa*, planted less than thirty years ago, is 60 feet high, with a trunk 7 feet 5 inches in girth—a model of health and vigour. These three trees are perhaps the most notable examples of rapid growth, but other evidences of the generous climate are to be seen in the fine trees of *Thuja gigantea*, *Juniperus virginiana*, *Cupressus* (*Chamaecyparis*) *nootkatensis*, *C. sempervirens*, and *Abies nobilis*. In some plantations of Scots Pines and Larches made by Sir Herbert a few years ago it was interesting to note that a few specimens of the Japanese *Picea ajanensis* were making the best headway, the "leads" of some this season being already over 2 feet long. *Abies Nordmanniana*, although it evidently grew well in its early days, has proved a failure owing to the attacks of a scale insect and of a fungoid pest—*Peridermium elatinum*—which causes curious gouty, barrel-shaped protuberances on the branches.

There is a charming old-fashioned garden attached to the house where are growing some striking shrubs. I noted *Rhododendron barbatum*, *Chionanthus virginicus*, 10 feet high and as much through, and *Olearia Haastii*, 9 feet high and 15 feet through. *Lilium giganteum* is perfectly at home here; one spike I saw carried twenty flowers.

* Contributed to the *Kew Bulletin of Miscellaneous Information* by Mr. W. J. Bean.

CASTLE KENNEDY.

Castle Kennedy is close to Loch Ryan, in Wigtownshire, and a long way to the south-west of Perthshire. The climate, whilst equally moist, is considerably warmer, and a different class of trees and shrubs is growing here. Escallonias, for example, especially *E. macrantha*, thrive as well as they do in Cornwall, and are evidently held in about the same esteem as Laurels in less favoured places. Callistemons were flowering freely, and *Eucalyptus Globulus* was 35 feet high. *Olearia macrodonta*, which I saw so fine at Inverewe, in Ross-shire, was here equally good. The prevailing type of *Rhododendron* is Himalayan, either the pure species (especially *R. arboreum*, *R. Thomsoni*, and *R. campanulatum*) or hybrids in which their "blood" predominates. A further evidence of the character of the climate was afforded by *Richardia africana* growing in an open pond, and flowering freely.

I should think Castle Kennedy is one of the best watered inland demesnes in Britain. The gardens are situated chiefly on a neck of land between two lochs known as "Black" and "White" respectively, and there are several ponds and minor pieces of water besides. From a landscape point of view, one of the remarkable features of the place is the amount of terracing that has been done. Many of the natural mounds and hollows have been squared and trimmed, the slopes made into terraces, and the ponds rounded. There are also formal elevated mounds from which good views of the gardens and lochs are to be seen. This kind of landscape art was more to the taste of a bygone time than it is to that of the present day. When newly done, its aspect must have been crude and hard, but the softening hand of time has done much to ameliorate its hard lines, and where an arboreal vegetation does not grow, a thick, well-kept turf covers it all. We must say of this phase of Castle Kennedy, what applies equally well to the formal garden at Drummond, and to the topiary work of Levens: one may not care to copy it, but it is in its way unique, and one would be sorry were it to be destroyed.

Here, as in so many Scottish gardens, the Conifers are the chief objects of interest. *Araucaria imbricata* is very fine, and produces cones regularly; there is a striking avenue of large specimens, one of which (it may not have been the largest) had a trunk 7 feet in girth. Equally striking to me, and less bizarre in its effect, was an avenue of *Cupressus macrocarpa*; one of the tallest was 60 feet high; another, branching low, was 9 feet 8 inches in girth at 2 feet from the ground. I saw many excellent specimens of various Silver Firs: *Abies Webbiana*, girthing 6 feet, with its naturally sown seedlings springing up around; *A. Nordmanniana*, also self-sown; *A. cephalonica*, 63 feet high and 9½ feet in girth; the rare Himalayan *A. Pindrow*, 60 feet high and 4 feet 5 inches in girth; the still rarer *A. religiosa*, from Mexico (the only specimen I saw in Scotland), 40 feet high; *Picea polita*, 20 feet high, well-furnished and well-formed; and *Cryptomeria japonica*, 50 feet high, with the unusual girth of 6 feet 3 inches.

The Holm Oak is not so fine individually here as it is at Kew, but a grove of forty of them gave one an idea of the "Ilex" woods of Southern Europe. I have already alluded to the *Rhododendrons*, but all the Ericaceous plants are remarkably well-grown. *Pieris floribunda* was 10 feet high, the scarce *P. mariana*, 7 feet high and through, *Kalmia angustifolia*, 6 feet high, *Cassandras*, 4 feet high, and many more equally notable.

TRADE MEMORANDUM.

RAT POISON.—It is stated that the use of a method discovered by Dr. Danysz, of the Pasteur Institute, Paris, has proved an unqualified success. What we suppose is a similar preparation has been discovered in Copenhagen, and has been placed on the market under the name Ratin. Both preparations are said to be harmless, except to rats and mice, and free from objection. Rats are not only extremely destructive, but they are now known to be the carriers of plague, and perhaps other diseases. It is, it appears, not the rat itself but the flea which infests the rat which conveys the poison to the human being. We have no personal knowledge of either of these preparations, but we may add that particulars may be obtained from the Danysz Company, 62, Leadenhall Street, and from the Ratin Company, 17, Gracechurch Street, London.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

CAMELLIA FLOWERS FROM THE OPEN.—I am sending two Camellias plucked from a tree in the open in one of the shrubberies at Huntsham Court. I planted several Camellias from tubs last autumn, and the flower buds on the tree from which the blooms were gathered were then small, but notwithstanding all the frost we have had (20° were registered on February 8), they have developed. I also planted out a variegated single variety, but the buds had developed and then fell off. *W. H. Collett, Huntsham Court Gardens, Bampton, N. Devon.*

DAPHNE ODORA (INDICA).—In the south-west, where it is grown in the open, this is invariably known as *D. indica*. In some gardens it has attained a large size, a shrub in this neighbourhood being over 5 feet in height. It appears quite hardy and its deliciously-scented blossoms bear several degrees of frost without injury. Here, during the cold weather, we experienced ten degrees of frost on four nights, which killed several tender things, including *Salvia leucantha*, *Arctotis aureola*, *A. aspera arborescens*, *Solanum aviculare*, *Gazania longiscapa*, *Moræa* (*Iris*) *Robinsoniana*, *Myoporum lætum*, *Calceolaria Burbridgei* and *Psoralea pinnata*, but a week later I cut 30 bloom-clusters from my *Daphne*, which were quite fresh and uninjured. The perfume of these when they are brought into the house is delightful. The great drawback to this *Daphne* is that it is generally propagated by grafting, for grafted plants are seldom satisfactory. I have raised several from my bush by layering, and it can also be increased by cuttings of half-ripened shoots placed in sandy peat and kept in the propagating frame until rooted. *S. W. Fitzherbert, Kingswear, S. Devon.*

LENTEN ROSES (HELLEBORES).—A few years ago I had the pleasure of receiving some of Mr. Archer-Hind's varieties, following upon the receipt of a box of exquisite blooms. These plants have flowered with me several times, and they are very beautiful and vastly superior to the ordinary seedlings which can be purchased; in most cases better even than the named varieties which have been in cultivation for some time. The form is varied, and the colours present all the breadth of range mentioned by Mr. Fitzherbert. As he remarks, there are flowers from the purest white to the deepest maroon red, with beautifully spotted varieties besides. It is surprising that these flowers are not more commonly raised from seeds, for, although they take some little time to form plants capable of flowering, they are sufficiently compensating. Some of the strains of seed to be purchased are very good, but if the best results are desired recourse must be had to seed saved from one's own plants, care being taken to secure that they are gathered from the best plants alone. Another successful raiser of Lenten Rose seedlings whose flowers I have seen is Mr. Joseph Mallender, of Hodsock Priory Gardens, Worksop. Mr. Mallender has some very finely-coloured flowers, and a box of blooms he sent me a few years ago included some of great beauty and of fine colouring. There is no doubt that some of Mr. Archer-Hind's and some of Mr. Mallender's are superior in their way to the majority of the named Continental varieties; sent out some years ago, beautiful as some of these are. *S. Arnott.*

CURE FOR BIG-BUD IN BLACK CURRANTS.—Through the medium of the *Gardeners' Chronicle* may I draw the attention of all growers of Black Currants to the importance of treating their trees with lime and sulphur wherever affected with the Black Currant Gall-mite? The first application, which should be dusted on, should be given at the end of this month, and should consist of one part of ground, unslaked lime to two parts of sulphur by weight. The second application should be put on a fortnight later, and consist of slightly less than one part of lime to two and a quarter parts of sulphur. A fortnight after this again dust the bushes with still less lime—say half a part to two and a half parts of sulphur. The dusting should be done in the early morning when the dew is on the bushes. This method of treatment has so far proved most effective, and I shall be glad to learn of the results from any who may use it this season. *Walter E. Collinge, The University Department of Economic Zoology, Birmingham March 14, 1907.*

NIOTIANA SANDERÆ HYBRIDS.—For flowering at this season of the year these hybrids are valuable. I have a batch of plants in flower, and the colours are beautiful, especially those of crimson and purple shades. I have found it desirable not to pot them into large pots as the plants when growing too vigorously take up such a lot of room with their bottom foliage. I sowed the seed early in the autumn of last year, transplanted the seedlings into boxes and when they were large enough potted them into 8 and 4-inch pots. Many of the plants are 2 feet in height, and some are taller. They have a pleasing appearance in the greenhouse, rearing their heads of bloom above many of the other plants. *W. H. Collett, Huntsham Court Gardens, Bampton, N. Devon.*

NARCISSUS NOT FLOWERING (see p. 159).—In a note of mine on the above subject there is an editorially interposed line which says: "The rudiments of the flower are formed in the spring, or not at all." This does not quite agree with my experience based on observation through many years. "Spring," of course, is a somewhat expansive term, but that season has long passed before it is possible to discover any signs of the new flower-bud. What happens is this. Up to the middle or end of May, and later in some varieties of *Narcissus*, the functions of the plants are directed to the putting forth of all the stored up energies of a past season, and long after the flower-stem has been removed there is a continuance of stem-growth from the bulb. Frequently a flowering stem after having been plucked from the plant at the ground level will extend to six inches or more, often to nine inches, the foliage meanwhile extending and developing. This growth in a moist season is long continued, and so long as this is the case the bulb is of an impressionable degree of softness. While this softness is observable—and it is evident in the more perpetual rooting varieties or sections till well into the month of June—I take it no bud-formation is possible. Later on, when the fully mature stage has been reached by the leaves, consolidation of the tissues of the bulb is set up anew, and, working on the principle that the house has first to be built and subsequently furnished, the germ of flowering, or the rudiments of the flower, would be the finale to the season's work. But only rarely in the month of July is the rudimentary bud discoverable in the bulb of a *Daffodil*, even when a high magnifying power is employed; and, judged by subsequent progress within the bulb while the latter is in the stage referred to as "dormant," it must be exceedingly minute in the month named. Later on in August, September and October, while the bulb remains in the dry state and out of the ground, the progress and development of the flower-bud within the bulb is very interesting. In the early part of the first-named month the rudimentary bud of pin point size or larger may be found, while in October the shapely bud, the true outline of the upper portion of the scape and the miniature green leaves are all revealed. To those who seek information on the point I know of nothing affording greater interest than the subject of bud development within the bulb. By selecting a few dozens of bulbs of equal size and cutting a few open each week to note the progress made, much valuable information may be obtained. The same bulbs may be used in two different ways, and by making one or more transverse cuts some useful hints may be gathered concerning the modes of increase, the progressive direction of bulb growth, and other things. *E. H. Jenkins, Hampton Hill.*

THE SEASONS AT VENTNOR.—I find the winter has killed many plants that have thriven out-of-doors here for years past. Very large trees of *Eucalyptus* are killed, also the Ivy-leaved *Pelargoniums* that cover the fronts of some of the houses are dead, the fine old bushes of white *Marguerites* are also killed. Last year at this time I found flowering out-of-doors *Cyclamen latifolium*, *Daphne indica rubra*, *Cytisus*, *Marguerites*, Ivy-leaved *Pelargoniums*, *Roses*, *Wallflowers*, *Polyanthus*, and *Violets* in variety. This year there is scarcely a flower, excepting *Primroses* and *Violets*. In a notable garden at St. Lawrence the winter had played havoc with hardy Cacti. *Cereus* and *Opuntias* are killed down to the ground, also one or two choice *Yuccas*. *Cyclamen latifolium* have suffered but not so severely, *Sparmannia africana* also is cut down, *Myrtles* have suffered somewhat. The gardener told me that for several days he registered 12° of frost day and night. There were few plants in

flower here such as *Anemones*, *Daffodils*, *Primroses*, *Winter Aconite*, and the beautiful little *Saxifraga Grisebachii*. Another garden I was in had all the variegated *Aloes* killed. What seemed to me rather a novelty were quantities of seedling *Laurus-tinus* and *Sweet Bays* coming up under the old trees, the gardener said he had never found them seed and come up in such quantities before. *T. P. Ventnor.*

WORKS OF RUSKIN.—May I call the attention of my fellow-gardeners to the recently published works of Ruskin at 6d. each? For years I have longed to be a possessor of some of these gems of literature, but the price has been too high; now, happily, that barrier is removed. "A Joy For Ever," "Unto This Last," and "The Two Paths," are published by George Allen, London. *H. Williams, Trevinca, Redruth.*

GARDEN NOMENCLATURE.—It is fortunate for those who grow fruits and vegetables, that generally the names of the many varieties found are short and easily pronounced. The worst examples perhaps in fruit are found amongst *Pears*, so many of which have long French appellations, but these, so far as possible, Britishers shorten, and yet they are clearly recognisable. In the matter of abbreviations, the market-people are doubtless great sinners, but the fact that with them, as with all who are growers, short, easily-pronounced appellations are most favoured, should weigh with raisers when they christen their products. Happily, even among the most difficult names in fruit or vegetables, none can at all compare with those quoted and so properly animadverted upon by Mr. Watson. The poor gardener has to bear many sins and sorrows, but it is unfair to him that he should, by outsiders, be credited with originating the tongue-splitting and barbarous names he so often, and, it is to be feared, not always correctly, has to pronounce. With all classes of ordinary gardeners, and most certainly with the public, short crisp names are most in favour. Long terms, especially those that are of Latin or Greek derivation, are difficult to spell and write, and many a good thing has had to suffer because its long, difficult appellation created aversion. It is too often the case that an attempt is made to convey in a name some information as to the character of the product in question. That effort usually fails. Thus, in *Peas* we can well dispense with *Marrowfats* and *Prolifis*. *Gradus*, *Daisy*, or *Autocrat* are simple terms easily recollected, and are far better than other appellations of some three or four words. If such economy in naming could run through all sections of garden-products, there would be for them great gain and wider popularity. *A. D.*

THE EARLIEST BOOK ON CONIFERS.—*De Arboribus*, by P. B. Cenomani, was published in Paris in 1553, and is the earliest known work entirely devoted to coniferous trees. There are 64 pages, in which, amongst others, the genus *Pinus*, *Cedrus*, *Thuja* and *Cupressus* are included, and the illustrations are remarkably clear and truthful. It seems surprising at so early a date to find *Pinus Pinaster*, *P. tæda*, and *Cedrus major* (*L. libani*) so carefully described and figured. *A. D. Webster.* [We find no reference to "Cenomani" in Pritzl. Probably the book intended is *Pierre Belon's De Arboribus Coniferis*, &c., Paris, 1555.—ED.]

MUSA ENSETÉ.—For several years I have not grown this valuable species in tubs for sub-tropical groups, but have planted them in position in holes filled with rich soil. The plants so treated require less watering and produce larger leaves, which have a brighter midrib (this colour is perhaps its greatest attraction) than those plants which are plunged in tubs or large pots. After the leaves are spoilt by frosts, a few degrees do no harm, the leaves are cut off and the plants are lifted with a spade with 3 or 4 inches of soil around the stems and stored in a shed with the *Cannas*. Towards the end of March all the old soil is shaken off, the roots are trimmed, and the plants are put into as small pots as can be conveniently used, employing a compost of two parts of roughly broken loam and one part of leaf soil, with a good sprinkling of bone meal and sand, pressing the compost moderately firm. If rammed hard, small leaves will result. The plants are then placed in an early vinery and soon develop their leaves. In due course they are hardened and planted out, usually at the end of May. *A. C. Bartlett.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 19.—Visitors to the Vincent Square Hall on Tuesday last had no reason to lament the absence of horticultural exhibits, for the building was filled with them. The South African Exhibition had been removed, bag and baggage, only a few hours previously, and the superintendent was at work in the hall in connection with that removal as late as one o'clock on Tuesday morning, but nothing of this work was apparent at the meeting on that day. The hall was delightfully gay with Orchids, Carnations, Hippeastrums, Cinerarias, forced flowering shrubs, and a most miscellaneous collection of plants and flowers. The ORCHID COMMITTEE recommended three Awards of Merit, and the FLORAL COMMITTEE four Awards of Merit. The FRUIT AND VEGETABLE COMMITTEE recommended a First-Class Certificate to a variety of Kale after trial at Wisley.

In the afternoon, 38 new Fellows were elected, and Mr. Barbour James delivered a lecture on "Horticulture in British Guiana."

Floral Committee.

Present: W. Marshall, Esq. (chairman); and Messrs. C. T. Druery, W. G. Baker, J. W. Barr, F. Page Roberts, T. W. Turner, G. Reuthe, C. Blick, J. F. McLeod, C. J. Salter, Jno. Jennings, Geo. Gordon, C. R. Fielder, Herbert J. Cutbush, James Douglas, W. Bain, Charles Dixon, Arthur Turner, Chas. E. Pearson, A. R. Goodwin, E. H. Jenkins, R. C. Notcutt, George Paul, M. J. James, R. Hooper Pearson, R. C. Reginald Nevill, and R. W. Wallace.

Messrs. W. CUTBUSH & SON, Highgate, London, N., displayed a magnificent group of forced flowering shrubs of the usual subjects, such as Azaleas, Magnolias, Spiræas, Wistarias, Lilacs, Laburnums, Ribes, Forsythia, &c. Some idea of the size of the exhibit may be formed when we state that it required eight large vans to convey the plants. The group was well arranged, and was enhanced with Ferns, Palms, Maples, &c., interspersed. As a separate exhibit, Messrs. CUTBUSH displayed a seasonable assortment of rock-garden plants, prominent among which was a specimen of *Stylophorum diphyllum* in flower. (Gold Medal.)

Messrs. R. & G. CUTHBERT, Southgate, London, N., also exhibited a fine array of forced shrubs, a feature of which were grand plants of Azaleas, and beautiful specimens of Lilacs. These, with Magnolias, Viburnum, Ericas, *Pyrus Malus floribunda*, and other showy subjects formed an exhibit of great beauty. (Silver-Gilt Flora Medal.)

Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, staged a group of forced shrubs, utilising a number of well-flowered Clematis, of large flowering varieties, as an edging to the group. (Bronze Flora Medal.)

Messrs. PAUL & SON, Old Nurseries, Cheshunt, Herts, staged a group of Lilacs in flower. The plants, which were home raised, were pretty examples, being compact and crowned with their beautiful racemes, mostly of double flowers. (Silver Banksian Medal.)

Messrs. JAMES VEITCH & SONS, Ltd., King's Road, Chelsea, showed interesting shrubs in flower, including the new *Jasminum primulinum*, *Clematis montana rubens*, a double variety of the white *Prunus sinensis*, *Cerasus serrulata*, greenhouse varieties of *Rhododendrons*, and some splendid Azaleas. On an adjoining table Messrs. VEITCH staged 120 seedling *Hippeastrums* of their excellent strain, and *Clivias*, Carnations, and other greenhouse plants. (Gold Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, made a brilliant display with bunches of Zonal *Pelargoniums* of the finest varieties, and a batch of star and florists' *Primulas* of an excellent strain. The variety *Reward* of the stellata type has "pips" of an extraordinary size; the colour is white, with a beautiful yellow "eye." (Silver Flora Medal.)

Mr. R. GILL, Tremough Gardens, Penrhyn, Cornwall, displayed about 50 seedlings and 20 named varieties of *Rhododendrons*, all from the open ground. At the back were paintings of many species and hybrids of *Rhododendrons*, executed by Mrs. GILL, in natural colours. The

group also contained sprays of *Pieris* (*Andromeda*) *japonica*, *Erica codonodes*, &c., the freedom of flowering and luxuriance of growth being remarkable. (Bronze Flora Medal.)

Messrs. WM. PAUL & SONS, Waltham Cross, Herts, staged flowering Peaches, especially beautiful being the double white variety, the long growths of which were studded with the milk-white blossoms. *Forsythias* and *Clematis indivisa lobata* were intermingled with the Peaches. (Silver Banksian Medal.)

Mrs. WILLIAMS, Gerran, Cornwall (gr. Mr. E. Martin), staged vases of Violet Princess of Wales.

Mr. GEO. MOUNT, Canterbury, Kent, showed a splendid batch of the beautiful Rose Richmond, and other equally good blooms of Mrs. W. J. Grant, Frau Karl Druschki, and Mrs. R. G. Sharman Crawford. (Silver Banksian Medal.)

Messrs. T. ROCHFORD & SONS, Broxbourne, Herts, staged a batch of the handsome *Nephrolepis exaltata* *Todeoides*, which formed the subject of our supplementary illustration in our issue for December 29. (Silver Flora Medal.)

Mr. H. BURNETT, St. Margaret's Nurseries, Forest Road, Guernsey, staged a group of winter-flowering Carnations, very similar to the exhibit which secured him the premier award at the recent exhibition of the Winter-Flowering Carnation Society. The beautiful variety Mrs. H. Burnett was much admired. (Silver Flora Medal.)

Mr. A. F. DUTTON, Iver, Bucks, had an exhibit of these popular flowers in most of the best varieties, for which a Silver Banksian Medal was awarded, and another excellent display of these Carnations was staged by Messrs. HUGH LOW & CO., Bush Hill Park, who also exhibited greenhouse flowering plants, including some *Cyclamen* of pretty shades of colours.

Lachenalia Neilsoni was shown very finely by Mr. BISCHOFFSHEIM, Warren House Gardens, Stanmore (gr. Mr. J. Doig). There were upwards of forty plants in 5-inch to 6-inch pots, some of the pots having ten strong flower spikes. The effect of the buttercup-yellow coloured flowers was much admired, and, viewed from a short distance, the inflorescences looked like miniature candelabra. (Bronze Banksian Medal.)

Clematises in such profusion as to suggest the coming of another Temple Show were shown by Mr. H. B. MAY, Dyson Road Nursery, Edmonton. These were nice plants in small pots, and were very freely flowered. The variety Marcel Moser, as usual, appeared very superior, but the white Mrs. Quilter, the mauve-coloured *Lawsoniana* of very large size, the deep-blue coloured Lord Nevill, and many others were included in the group. (Silver Banksian Medal.)

Mr. W. E. WALLACE, Eaton Bray Nurseries, Dunstable, had excellent bunches of tree Carnation flowers, and also blooms of several varieties of Roses, as the brilliant Richmond, which gained an Award of Merit at the last meeting, Frau Karl Druschki, &c. (Silver Flora Medal.)

Messrs. DUTTON & SONS, Reading, showed a large group of *Cinerarias*. On this occasion the plants were of the stellate-flowered type, and a particular strain in which the margins of the segments are rolled lengthways under themselves "revolute." The effect, therefore, is increased stellate, and the strain has been described as "Cactus flowered." The flowers are very pretty for decorative uses, and some may prefer them to those which produce larger flowers. In habit the plants are dwarf-growing like the florists' *Cineraria* rather than lax as the stellate type. The colours are varied and bright. (Silver Flora Medal.)

The old-fashioned *Thysacanthus rutilans*, a brilliant, winter-flowering greenhouse plant with pendulous racemes of scarlet, tubular flowers, was well shown by Lord ALDENHAM, Aldenham House, Elstree (gr. Mr. E. Beckett). The racemes were more than 3 feet in length. All the plants were arranged on stands 12 or 14 inches in height, and the plants themselves were more than 2 feet high; still the racemes reached the table, which was covered with white paper for effect. A selection of early-flowering shrubs was exhibited as sprays from the same garden, including *Berberis japonica*, *Prunus Davidiana* alba, *Daphne Mezereum* alba, *Lonicera fragrantissima*, also *Alnus*, *Corylus*, and *Salix* species, &c. (Silver Banksian Medal.)

E. A. HAMBRO, Esq., Hayes Place, Kent (gr. Mr. G. Grandfield), filled the whole of one side of a table with a collection of Alpine and other plants in pots. This collection included excellent specimens of many pretty and rare plants. *Daphne Blagayana*, for instance, was shown in a 10-inch or 12-inch pot, a good specimen in flower. Many of the *Primulas*, *Hepaticas*, *Muscis*, &c., also bulbous plants were in bloom. *P. denticulata* alba was especially good. Some of the *Saxifragas*, *Sempervivums*, and others were shown, though not in bloom. The collection was studded and somewhat over-shadowed by half-a-dozen or so very large plants of *Rhododendron præcox* in flower. (Silver-Gilt Banksian Medal.)

Mr. G. REUTHE, Hardy Plant Nursery, Keston, Kent, showed many interesting hardy flowers, Irises, *Primulas*, *Crocuses*, *Anemones*, *Hepaticas*, &c., and inflorescences of *Rhododendrons*. (Silver Banksian Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, London, W., displayed a selection of seasonable hardy flowers, principally of Alpine and rock-garden species, among which were noticed such fine things as *Crocus biflorus* *Alexandæ*, *Anemone blanda scythica*, *Tulipa Korolkowii*, *Noccea* (*Iberis*) *stylosa*, *Juniperus hibernica compressa*, &c., and many *Daffodils* and other spring bulbous flowers.

THE CRAVEN NURSERY COMPANY, Clapham, Yorkshire, showed Alpine plants, including a beautiful collection of *Saxifragas*, among which we noticed magnificent specimens of *Saxifraga Burseriana*, the variety *Gloria* having extra large flowers. There were also grand plants of *S. Griesbachii*, *S. Boydii* alba, *S. Frederici*, *Augusti vera*, &c.

Exhibits of Alpine and rock-garden plants were also displayed by the Misses HOPKINS, Barming, near Maidstone, Kent; Messrs. JOHN PEED & SONS, Forest Hill; Messrs. T. S. WARE & SONS, LTD., Feltham (Silver Banksian Medal); and Messrs. J. CHEAL & SONS, Crawley, Sussex.

A new species of *Thibaudia* was shown by J. T. BENNETT-POE, Esq., Holmwood, Cheshunt, to which we shall refer on a future occasion.

AWARDS OF MERIT.

Magnolia Soulangeana nigra.—This is the deepest-coloured form of this well-known variety. The flowers are of an exceedingly rich brownish-purple shade. In other respects the variety is like the type, especially in the form of the flowers which are well coloured in the interior, although the shade is much deeper on the exterior. Shown by Messrs. R. & G. CUTHBERT.

Rhododendron "Duke of Cornwall."—This is one of the most brilliant-coloured *Rhododendrons*, being of bright-red colour, which lights up grandly under the rays of the sun. It was raised as a cross from a variety of *R. arboreum*, and the species *R. barbatum*. The leaves are 10 inches long, 2 inches across at the widest, and almost smooth on the under surface. The variety is described as being as hardy as *R. Pink Pearl*, *R. Kewense* x, &c. Shown by Mr. R. GILL, Tremough, Devon.

Rhododendron Kewense x.—This is a well-known and beautiful hybrid raised at Kew from a cross between *R. Griffithianum* and *R. Hookeri*. It was illustrated in these pages May 14, 1898. This hybrid is usually described as pink-flowered, but occasionally plants are perfectly white-flowered, as was the specimen exhibited by Messrs. PAUL & SONS, on Tuesday last.

Saxifraga Burseriana "Gloria."—This is the best form of *S. Burseriana* we have seen, the flowers appearing larger and stronger than those of *S. Burseriana major*. Shown by THE CRAVEN NURSERY COMPANY.

Narcissus Committee.

The committee met on this occasion, but they had little to do. The principal exhibit that came before their notice was a very large group of forced *Narcissi* and *Tulips* shown by Messrs. CUTBUSH & SONS, Highgate, and for which a Silver-Gilt Flora Medal was awarded. Messrs. BARR & SONS, King Street, Covent Garden, also exhibited a fine group of *Nar. issi*. Mr. BAYLOR HARTLAND, Ard Cairn, Co. Cork, Ireland, showed one or two seedling *Narcissi*, and Sir EDMUND LODER, Bart., Leonardslee, Sussex (gr. Mr. W. A. Cook), sent a natural hybrid of *N. cyclamineus* x *N. minimus*.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, J. Wilson Potter, H. Little, W. Boxall, G. F. Moore, F. M. Ogilvie, T. W. Bond, A. A. McBean, F. Sander, J. Charlesworth, H. T. Pitt, Fred. J. Hanbury, W. Cobb, R. G. Thwaites, H. A. Tracy, W. H. Young, H. G. Alexander, F. J. Thorne, H. Ballantine, W. A. Bilney, W. Bolton, and W. P. Bound.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, were awarded a Silver-Gilt Flora Medal for a very fine exhibit that was rich in good things. The leading subjects were grouped, in the centre being forms of *Lælio-Cattleya* Myra and similar hybrids. A batch of the fine Heaton forms of *Odontoglossum* Rolfeæ, a group of good *O. crispum*, another of various hybrid *Odontoglossums*, including *O. Ossulstoni*, *O. Othello*, *O. Lawrenceanum*, *O. ardentissimum*, *O. Phoebe*, &c.; a selection of brightly-coloured *Cattleya* Enid, and *C. Empress Frederick*, and several rich scarlet *Sophræ-Lælia* Psyche. Various interesting species and natural hybrids were also seen.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, secured a Silver Flora Medal for an extensive and showy group composed principally of very finely-flowered *Dendrobium* Wardianum, *D. crassinode* of the best type, *D. nobile* in variety, a selection of *Odontoglossum* crispum, and other good species. The front was of the fine yellow *Oncidium* concolor, behind which was a selection of the new *Cypripedium* Countess of Carnarvon, &c.

Messrs. JAS. CYPHER & SONS, Cheltenham, were awarded a Silver Flora Medal for a group in which their fine *Dendrobiums* were well represented; also *Odontoglossum* crispum and *O. Pescatorei*, both of excellent quality. It contained also good forms of *Lycaste Skinneri*, including finely-flowered plants of the pure white form. Among the *Cattleyas* were some excellent specimens of *C. Schroderæ*, one having very large parts, the broad petals and the lips being both finely crimped; a good *C. calumata*, *C. Trianae*, &c. Of *Cypripediums*, we noted the massive *C. Beekmanni* and *C. Tixalense*.

Messrs. SANDER & SONS, St. Albans, were awarded a Silver Flora Medal for an effective group, in which the varieties of *Cattleya Trianae* were prominent. The best were *C. T. E. Cooper*, a good white flower, with a delicate lavender tint, and broad labellum, the front of which was of a peculiar shade of violet; a good example of *C. T. Backhousiana*, and one of the new *C. T. plumosa*, with crimson tips to the petals, similar to *Backhousiana*, but with a darker, purplish-crimson lip. Among hybrids, the richly-coloured *Lælio-Cattleya* *bletchleyensis* *ardens* was the best, its intense ruby-crimson lip, veined with claret colour, being very beautiful.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, were awarded a Silver Flora Medal for a neat group of finely-flowered *Dendrobiums*, *Cypripediums*, &c., specially good being *Zygopetalum* Gottianum, one of the finest hybrid *Zygopetalums*.

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), showed a selection of hybrid *Cypripediums*, two plants of *Cymbidium* Wiganianum, a good specimen of *Platyclinis* glumacea, &c.

C. J. LUCAS, Esq., Warnham Court (gr. Mr. Duncan), sent *Lælio-Cattleya* Amelia (*L. harpophylla* × *C. Percivaliana*), *L.-C. Adelina* (*L. cinnabarina* × *C. Percivaliana*), and *Cypripedium* Pauline.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), showed *Lælio-Cattleya* Mrs. R. A. H. Mitchell (*C. Warszewiczii* × *L.-C. Martinetii*), a showy hybrid, with rose-purple tinted sepals and petals, and having a fine purple lip veined with claret colour, merging to rose towards the margin.

JEREMIAH COLMAN, Esq., Gatton Park (gr. Mr. W. P. Bound), again showed the large and beautiful *Dendrobium* Othello "Colossus."

MONSIEUR MERTENS, Mont St. Amand, Ghent, showed a selection of hybrid *Odontoglossums*.

MONSIEUR FLORENT CLAES, Etterbeek, Brussels, showed *Odontoglossum* crispum Fr. Claes, a very handsomely-blotched form of great

merit. The sepals and petals were white, tinged with rose, the reverse side with deep purple, which showed through to the face in the parts surrounding the large, claret-coloured blotches. Also *O. crispum* Rita Claes, a pretty flower near to the famous *O. c. Lady Jane*; and *Cattleya Trianae* Queen Wilhelmina, another good flower.

Messrs. HUGH LOW & Co. staged a group of *Dendrobiums*, *Cypripediums*, &c.

Major G. L. HOLFORD, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), exhibited *Lælio-Cattleya* × *Olivia* (*L. Jongheana* × *C. Schroderæ*) of the size and colour of the best *C. Schroderæ*, but thicker in substance. The same exhibitor also displayed the very fine *Odontoglossum* crispum Rosemary (see Awards).

Mr. H. A. TRACY, Twickenham, showed *Odontoglossum* loochristiense "Edith Wynne," a very large and finely-formed flower of a clear yellow colour, heavily blotched with chestnut red.

F. G. GLEDSTANES, Berry Hill, Taplow (gr. Mr. Milsom), sent heavily flowered, cut pseudobulbs of *Dendrobium* nobile and *D. Wardianum* giganteum.

G. F. MOORE, Esq., Chardwar, Bourton-on-the-Water (gr. Mr. Page), exhibited *Cypripedium* Chas. Lucas (*Beekmanni* × *Swinburnei* magnificum) and *C. Mrs. Fred. Hardy*.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed three fine plants of the superb *Odontoglossum* triumphans Lionel Crawshaw.

AWARDS.

AWARDS OF MERIT.

Odontoglossum crispum Rosemary.—A magnificent variety of the typical *O. crispum*, having white flowers slightly tinged with rose. The sepals and petals are almost equally broad, and they measure nearly 5 inches across. The finely-grown specimen bore a spike of nine flowers. From Major G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander).

Odontoglossum crispum Lily Bourdas.—A very beautiful example of the blotched *O. crispum*. The flowers are of good form, and are white, with purple at the back, which shows through to the face of the flower. Each segment bears a large cluster of reddish-claret blotches. The lip is white with brown blotches in front of the yellow disc. Shown by H. S. GOODSON, Esq., Fairlawn, West Hill, Putney (gr. Mr. G. E. Day).

Cymbidium Colmana, Edenside variety (*eburneum* × *eburneo-Lowianum*), from Mr. JAS. DOUGLAS, Edenside, Great Bookham. In the original form shown by Jeremiah Colman, Esq., there was a slight colour on the lip. The present form adheres closely to the waxlike texture and ivory-white colour of *C. eburneum*.

CULTURAL COMMENDATION.

To Mr. Warrington (gr. to Miss M. E. RUSHTON, Monks Manor, Lincoln) for a magnificent specimen of *Cypripedium* Rothschildianum, with eight spikes, bearing altogether twenty-seven flowers.

CHANGE OF NAME.

Odontoglossum Lady Howick.—The plant which received an Award of Merit under the name of *O. mirum* Lady Howick had its name changed to *O. Lady Howick* (parentage unrecorded), there being a doubt about the former record.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the chair); and Messrs. Alex. Dean, Ed. Beckett, H. Parr, Geo. Kelf, Jno. Lyne, H. Markham, J. Davis, Geo. Reynolds, W. H. Divers, Chas. Foster, J. Willard, P.-C. M. Veitch, H. Somers Rivers, James Vert, and James Gibson.

A very fine sample, contained in several baskets, of Ailsa Craig Onion was shown by MARK FIRTH, Esq., Wiston Hall, Leicester (gr. Mr. F. J. Clark). (Silver Knightian Medal.)

Messrs. T. RIVERS & SONS, Sawbridge-worth, Herts, displayed ripe fruits of Oranges, gathered from the pot trees exhibited at a recent meeting of the Society. Included were other fruits of the genus *Citrus*—Lemons, Citrons, Shaddock, &c. (Silver Banksian Medal.)

FIRST-CLASS CERTIFICATE.

Kale *Chou de Russie*.—This variety was granted this award—after trial at Wisley—and

on the recommendation of the sub-committee, whose visit and a note of the trial is described on p. 192. It is a very large headed Kale, and has thick side growths, the foliage being very deeply cut. The centre forms a head of very tender leaves, with very little waste. Sent by Messrs. J. CARTER & SONS, High Holborn.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 7.—Committee present: E. Ashworth, Esq. (chairman); and Messrs. R. Ashworth, Thorp, Ward, Williamson, Sander, Keeling, Cypher, Walsley, Shill, Warburton, Leemann, Parker, P. Smith, P. Weathers (Hon. Sec.).

There was an excellent exhibition, and the meeting-room presented a very gay appearance.

Mr. Z. A. WARD, Northenden, exhibiting for the first time at Manchester, staged a charming collection of well-grown plants of choice and interesting varieties of *Odontoglossums*. (Silver-Gilt Medal.)

Messrs. SANDER & SONS, St. Albans, staged a group of plants, in which was a distinct strain of *Cattleya Trianae*, each variety being of a pale colour bordering on the true albino forms. (Silver Medal.)

Messrs. CYPHER & SONS, Cheltenham, staged a group of miscellaneous plants. (Silver Medal.)

W. THOMPSON, Esq., Stone, obtained a Silver Medal for a group of plants, principally *Odontoglossums*.

A. WARBURTON, Esq., Haslingden, also gained a Silver Medal for a choice and varied exhibit.

First-Class Certificates were awarded to *Odontoglossum* × *Wardii*, *O. polyanthum* × *O. Harryanum*, all shown by Z. A. WARD; *Lælio* × *Cattleya* × *Dominiana* var. *magnifica*, shown by Messrs. CYPHER & SONS; and *Odontoglossum* crispum var. *Mossiae*, exhibited by J. S. MOSS, Esq.

Awards of Merit were granted to *Odontoglossum* × *amabile* var. "King Edward VII.," *O.* × *Waltonense*, Ashlands var., *O. crispum* var. *Dido*, these three from R. ASHWORTH, Esq.; *O.* × *Crawshawianum* superbum, shown by W. THOMPSON, Esq.; *O.* × *Phoebe*, Ward's variety, *O.* × *Elaine*, *O.* × *Rolfeæ*, Ward's variety, the three last-named from Z. A. WARD, Esq.; *Vanda Watsoni* (new species) and *Cypripedium* × *Hunterii*, both exhibited by Messrs. SANDER & SONS; *C. "Madeline"* and *Odontoglossum* × *Adrianæ*, Ashworth's var., both presented by R. ASHWORTH, Esq.; *Odontoglossum* Cooksonianum, *O.* × *loochristiense*, "Empress Frederick," *O.* × *Lambeauium*, Vine House variety, and *Cattleya Trianae*, "The Don," the last-named from A. WARBURTON, Esq.

A Botanical Certificate was given to *Sarcophilus Fitzgeraldii* from the collection of G. W. JESSOP, Esq. P. W.

CATALOGUES RECEIVED.

R. H. BATH, Ltd., Floral Farms, Wisbech—Plants and Seeds.

KENT & BRYDON, Darlington—Farm Seeds.

COOPER, TABER & Co., 90 & 92, Southwark Street, London, S.E.—Seeds (wholesale).

RANSOMES, SIMS & JEFFERIES, LTD., Orwell Works, Ipswich—Lawn Mowers.

WAKLEY BROS. & Co., LTD., Honduras Wharf, Bankside, London, S.E.—Hop Manure.

CLIBRANS, Altrincham and Manchester—Dahlias.

H. ELLIOTT, Hassocks, Sussex—Carnations, Chrysanthemums, Roses, &c.

HARRISON & SONS, Seed Growers, Leicester—Farm seeds.

A. W. P. PIKE, Dianthus Villa, Llanishen, Cardiff—Carnations and Picotees.

BARR & SONS, 11, 12 & 13, King Street, Covent Garden, London—Hardy Perennials, Alpines, Aquatics, &c.

Messrs. KIPPING, Hutton, Essex—Hardy Perennials and Alpines.

FOREIGN.

SOUPERT & NOTTING, Luxembourg (Grand Duchy)—Roses.

DR. RENATO ROVELLI (Fratelli Rovelli), Pallanza, Lago Maggiore.—This list includes some choice plants for the cool temperate house and sub-tropical regions. Shrubs, trees, evergreens and rare Conifers are specially noted.

ANT. ROOZEN & SON, Overveen, near Haarlem, Holland—Bulbs and Seeds.

CLAUDE FERLAT, 128, Rue d'Heyrieux, Moulins, Lyon, Rhône—A general catalogue, and with special reference to Carnations and Roses.

VILMORIN, ANDRIEU ET CIE., 4, Quai de la Mégisserie, Paris—List of Novelties, Vegetable, Fruit and Flower Seeds and Plants, and Gladiolus corms.

L. BOEHMER & Co., 5 & 28, Bloff, Yokohama, Japan—*Lilium longiflorum* and its varieties.

GARDENING APPOINTMENTS.

- Mr. G. J. GOODALL, for the last 15 years Gardener to the late G. H. MORRELL, Esq., Streasley House, near Reading, as Gardener to Thos. B. BRIGGS, Esq., Holton Park, near Oxford. (The 1s. has been put into R.G.O.F. Box.)
- Mr. E. YOUNG, for the last 4 years Gardener and Orchid Grower to F. A. BROWN, Esq., Norcott, Hampton Wick, as Gardener to H. S. Towgood, Esq., Riversfield, St. Neots, Hunts.
- Mr. HERBERT STOWE, as Gardener to V. DE C. HUGHES, Esq., Galtown, Kilcullen, Co. Kildare.
- Mr. RICHARD HOWELLS, for nine years Gardener at Stallington Hall, as Head Gardener to C. B. TOLLER, Esq., Aston Bank, Hawarden, Chester.
- Mr. ALBERT PRATT, for the past six years Gardener to J. DEWRANCE, Esq., Cranmore Place, Chislehurst, Kent, as Gardener to C. BAYER, Esq., Tewkesbury Lodge, Forest Hill, London, S.E.
- Mr. E. BUNBURY, for 29 years Gardener at Arundel Castle, Sussex, is retiring from Arundel in order to take charge of the gardens at Beech Hill, Sheffield.
- Mr. WALTER H. ROGERS, late Foreman of Banstead Wood, Surrey, as Gardener to T. M. FRANKLIN, Esq., St. Hilary, Cowbridge, South Wales.
- Mr. D. McLACHLAN, lately Gardener at The Dolphin Hotel, Cleethorpes, Lincolnshire, as Gardener to Miss SURTEES, Hamsterley Hall, Rowlands-Gill, Newcastle-on-Tyne.
- Mr. R. BROWN, for the past five years Foreman at Stanwick Park, Darlington, as Gardener to General CALTHORPE, Perry Hall, Birmingham.
- Mr. J. H. JONES, late Gardener to BATEMAN L. ROSE, Esq., Tooty Hill, Sittingbourne, Kent, as Gardener to ARTHUR WHITAKER, Esq., Chiddingstone Castle, Eden Bridge, Kent.
- Mr. A. PARRY, late of The Isle of Dogs, Three Ashes, Ross, Herefordshire, as Gardener to the Lady ALICE W. FITZWILLIAM, Eastcliff, Bembrige, I.W.
- Mr. WM. PURVER, as Gardener to The Right Hon. Sir ROBERT ROMER, Hermead Bury, Buntingford, Herts.
- Mr. F. G. OGLE, for the past two years Gardener to Sir R. BLOIS, Bart., Cockfield Hall, Yoxford, as Gardener to P. W. CORBOLD, Esq., Kesgrave Hall, Ipswich.
- Mr. MATTHEW NICHOLLS, for the past 44 years Gardener at Alice Holt, near Farnham, Surrey, as Head Gardener to Sir M. E. COLLET, Bart., St. Clare, Kemsing, Sevenoaks, Kent.
- Mr. MAURICE JONES, late of Hullbank Hall Gardens, near Hull, as Gardener to A. HARRISON SMITH, Esq., Carlton Hall, near Worksop, Notts.
- Mr. JAMES P. REID, for the past 24 years Foreman at Newberry, Radlett, Herts, as Gardener to HATFIELD HARTER, Esq., Cranfield Court, Woburn Sands, Beds.
- Mr. WM. H. TISSINGTON has succeeded his late father as Gardener to Mrs. G. LOCKER-LAMPSON, Barlborough Hall, Chesterfield, Derby.
- Mr. ERNEST BIGGS, for the past three years Foreman at Garnstone Castle, as Gardener to ISAAC MARSHALL, Esq., Sarnesfield Court, near Wobley, R.S.O. [The two shillings has been placed in R.G.O.F. box.]

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending March 20.

Continued high winds. This was the warmest week as yet experienced here this year. There have been warmer days, but on no night previously has the thermometer exposed on the lawn indicated so high a temperature as it did on the night of the 16th, when the minimum reading was 49°. The ground has also become warm, being at the present time 2° warmer at 2 feet deep, and 8° warmer at 1 foot deep, than is reasonable. Rain has fallen on all but two of the last 15 days, but to the aggregate depth of only 1½ inch. In fact, so evenly was the rainfall distributed, that on none of those days did the amount deposited rise to even a quarter of an inch. Some rainwater has come each day through both the percolation gauges, but the amounts have been small, and gradually diminishing. Although for two consecutive days the sun shone for altogether less than half an hour, yet the mean daily record for the whole week amounted to 6½ hours, which is two hours a day in excess of the March average. The most noteworthy feature was, however, the persistently high winds. The roughest period was between 2 p.m. on the 19th and 6 a.m. on the 20th, when the average velocity of the wind for those 10 hours amounted to 21 miles. To show how uniform was the rate of movement it may be stated that in the windiest of those hours the mean velocity was only 23 miles—direction west. The average amount of moisture in the air at 8 p.m. fell short of a seasonable quantity for that hour by 6 per cent. E. M., Berkhamsted, March 20, 1907.

Obituary.

J. COCHRANE.—We regret to record the sudden death on Monday last of Mr. William J. Cochrane, for some years past manager of Messrs. Hurst & Son's flower-seed department at Houndsditch.

ROBERT WARRINGTON, F.R.S.—The death of this distinguished agricultural chemist is announced to have taken place on March 20, at High Bank, Harpenden.

ENQUIRIES AND REPLIES.

MOLES.—Is it possible to keep moles out of a garden by sinking wire (netting) around it, say 8 feet deep? T. Kensington.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

ALLOTMENT GARDEN: C. B. W. You might obtain the *Calendar of Garden Operations* from our publishing department, price 7½d. post free.

AZALEA WITH GALLS: Z. G. The swellings are galls caused by a fungus—*Exobasidium Rhododendri*. You can do nothing now but pluck off the affected leaves and burn them. Spray them with or dip them in some fungicide, such as Bordeaux mixture or Condy's Fluid.

BOOKS: F. B. *Orchids: their Culture and Management*, by W. Watson, price 25s. 6d. *The Orchid Grower's Manual*, by B. S. Williams, price 16s. 7d. *The Amateur Orchid Cultivator's Guide Book*, by H. A. Burberry, price 5s. 4d. *The Culture of Greenhouse Orchids*, by Frederick Boyle, price 8s. 4d. *The Book of Orchids*, by W. H. White, price 2s. 9d. Any of these works can be obtained from our publishing department free by post for the prices named.

CORYLYNE ROOTS: X. The union was only superficial. We laid your specimens in a pan of water, with the result that the roots became separate after a short time without being touched.

CYANIDISING PLANT-HOUSES: D. W. B. We should not think 1oz. of sodium cyanide (130 per cent.) per 1,000 cubic feet of space would injure the most delicate plant. Several correspondents who have written in our pages on the subject recommend 2oz., so we are not certain if 1oz. would be effectual. In our issue for March 3, 1906, is a report of a lecture given by Mr. H. Westcott before the members of the Sevenoaks Gardeners' Society. In it he states: "For cold houses I have found a remarkably small dose sufficient—namely, 2oz. of sodium cyanide to every 1,000 cubic feet of space." You should look up this number of the *Chronicle*, for the lecture is full of information on the subject, but in any case exercise the greatest care, as you will be dealing with a most virulent poison.

DAFFODILS: P. G. There will be a special exhibition of Narcissi in the R.H.S. Hall, Vincent Square, Westminster, on April 16. The middle of April would be a very good time at which to visit Kew Gardens for the purpose of seeing the hardy bulbs in flower.

INSECTS: C. E. The common cockroach. Place some of Steiner's beetle paste about the house on pieces of broken flower pot; as this is a very poisonous substance, it should be placed out of children's reach. Cockroaches can be trapped in common garden mats placed on the hot-water pipes.

LEAF TO NAME: W. H., Blackburn, should send a better specimen properly packed.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. Correspondents not answered in one issue are requested to be so good as to consult the following numbers. **FRUITS:** D. Henry. Flower of Kent.

PLANTS: A. S. 1, *Picea orientalis*; 2, *Cupressus Lawsoniana*; 3, *C. Lawsoniana* var.; 4, *Juniperus sinensis*; 5, *Thuja occidentalis*; 6, probably *Juniperus sinensis*.—F. S. 1, *Polystichum lobatum*; 2, *P. lonchitis*; 3, *Cupressus sempervirens* var., or perhaps *C. Benthami*; 4, perhaps *Cupressus Knightiana*. In the absence of cones it is impossible to name even such good specimens as yours with certainty.—T. D. A. 1, *Sedum spurium*; 2, S.

hexangulare; 8, *S. dasyphyllum*; 4, *S. acre*; 5, *Eupatorium vernale*.—S. Newbiggin. *Narcissus incomparabilis sulphureus plenus*, commonly called Codlins and Cream.—W. B. *Odontoglossum cirrosum*.—A. R. 1, *Odontoglossum retusum*; 2, *Sophranitis cernua*; 3, *Ada aurantiaca*; 4, *Epidendrum Stamfordianum*.—A. I. *Chlorophytum Sternbergianum*.—E. B. 1, *Sedum reflexum*; 2, *Euphorbia myrsinites*; 3, *Populus male flower*, probably *P. canadensis*; 4, *Arrhenatherum bulbosum*; 5, *Helleborus orientalis* var. *roseus*; 6, *H. orientalis*.—A. J. C. 1, *Cupressus Lawsoniana*; 2, a Cedar, perhaps *C. Libani*; 3, *Cryptomeria japonica*; 4, *Pinus excelsa*; 5, *Retinospora plumosa*; 6, *Cornus mas*.—W. IV. Chickweed, *Stellaria media*.—J. R. F. 1, *Cupressus pisifera* var. *filifera*, commonly called *Retinospora filifera*; 2, *Cephalotaxus drupacea*, fastigate variety; *Abies Pinsapo*; 4, *Thuja orientalis Vervaneana*; 5, *Juniperus virginiana* var. *Schottii*; 6, *Cupressus Lawsoniana* var.; 7, a Cedar, perhaps *C. atlantica*.—R. J. F. *Abutilon megapotamicum*, variegated form.

PALM LEAVES DISEASED: P. M. G. The leaves are attacked by a fungus, *Graphiola Phoenixis*. Cut out and burn the worst leaves and spray the remaining ones with a fungicide, such as Bordeaux mixture or Condy's Fluid (permanganate of potash).

PEACH SHOOTS: W. O. The injury is brown rot caused by *Sclerotinia fructigena*. Cut out all diseased branches, and when the trees are resting next winter, syringe them thoroughly twice, at intervals of a month, with a solution of sulphate of copper, 1lb. dissolved in 25 gallons of water. This wash kills the foliage, and must therefore be used before the buds begin to swell.

POMPON DAHLIAS SUITABLE FOR THE GARDEN: A. C. The following 12 varieties with their colours are especially recommended by the National Dahlia Society for their general excellence as garden varieties, and especially for their freedom of flowering:—*Nerissa*, rose, tinted silver; *Daisy*, amber and salmon; *Tommy Keith*, cardinal, tipped white; *Bacchus*, crimson-scarlet; *Phoebe*, golden-orange; *Jessica*, amber, edged red; *Buttercup*, golden-yellow; *Douglas*, maroon, shaded crimson; *Darkest of All*, nearly black; *Thalia*, rose-pink, with white eye; *Guiding Star*, pure white; *Little Bugler*, rose purple.

RAMBLING ROSES: *Rambler*. Contrary to our rules, you have not furnished us with your name and address, consequently we do not know in what district the Roses are cultivated. It may safely be said, however, that in localities at all comparable to the neighbourhood of London in respect to its climatic conditions, *Rambler* Roses are not usually in flower out of doors in the first week of June. The pot plants may be allowed to grow out of doors until some time in May, removing them into a warm house sufficiently early to expedite their flowering. The time for removal indoors cannot be accurately stated now; it will depend upon the forwardness of the season. A good white or cream coloured variety is *Felicité et Perpetue*. *Trier* is another good white variety.

STRAWBERRIES FAILING TO SET: G. W. We suspect the failure is due to the pollen being shed before the stigmas have become receptive. If you have other batches of Strawberries in flower, pollinate the flowers of the one batch with those of the other by means of a rabbit's tail tied to a stick. It is advisable when forcing Strawberries to have a few plants of some free-setting variety in the house, intermingled with the main batch of plants. If the pollen ripens before the stigmas, a condition called by botanists "protandry," the flower is prevented from self-fertilisation. The Strawberry in its natural state has at least functionally unisexual flowers.

TULIP DISEASED: J. E. W. The failure is due to a fungoid disease caused by a species of *Botrytis*. Your best plan will be to burn the plants that were forced, to prevent the disease from spreading. Any bulbs in the beds should receive a dusting of slaked lime. See note on page 168.

COMMUNICATIONS RECEIVED.—J. D.—Tarus—J. G.—G. F. M.—Subscriber—Miss N.—J. J. D.—Niphotes—Enquirer—J. D.—H. W.—W. H. B.—W. A. C.—S. C.—T. A. S.—Chloris—E. M.—Flora Gesellschaft, Dresden—J. G. F.—W. G. S.



THE

Gardeners' Chronicle

No. 1,057.—SATURDAY, March 30, 1907.

CONTENTS.

Agriculture, scientific instruction in ...	205	Orchid notes and gleanings ...	198
Anglo-American gardeners ...	205	Pears, late ...	210
Apples in Germany ...	205	Phylloxera regulations on the Continent ...	205
Araucarias, fertilisation of ...	209	Plants, retarding ...	206
Books, notices of—		Potato, a history of the Propagator, the ...	207
Handbuch der Pflanzenkrankheiten ...	200	Pruning, advantages and disadvantages of ...	204
How I work my small farm ...	206	Roses, the pruning of ...	200
Camellias in the open ...	208	Side-grafting ...	201
Cats in the garden ...	211	Societies—	
Colchicum crocifolium ...	198	British Gardeners' ...	205
Commons and public footpaths ...	205	Royal Meteorological ...	211
Country garden, the ...	210	Sweet Peas, some new ...	208
Crocuses at Hampton Court ...	205	The Heights, Witley ...	197
Cyclamen latifolium, the wild form of ...	207	The Mohwa Tree ...	207
Fir Grange, spring flowers at ...	211	Trees and shrubs ...	209
Foreign correspondence—		Trees, fastigate evergreen ...	200
A new species of Eremurus ...	199	Tree topping at Kensington ...	204
Galanthus nivalis flavescens ...	198	Vegetables—	
Gardeners and extra-neous duties ...	211	Beans ...	201
Gladiolus, a new ...	205	Potatoes ...	202
Hanbury, the late Sir Thomas ...	205	Warington, the late Professor ...	205
Hippeastrums at Oakwood ...	199	Week's work, the—	
		Flower garden, the ...	208
		Fruits under glass ...	208
		Hardy fruit garden ...	202
		Kitchen garden, the ...	208
		Orchid houses, the ...	202
		Parks and gardens ...	208
		Plants under glass ...	202

ILLUSTRATIONS.

Camellia in the open, a large—	208
Cyclamen latifolium grown from a wild corm	207
Gladiolus Peace (Supplementary Illustration).	
Hippeastrums at Oakwood, Wylam-on-Tyne	199
Side-grafting	201
Thuya plicata, a pyramidal form of	200

THE HEIGHTS, WITLEY.

THE property and country house of Colonel Lord Edward Pelham Clinton, K.C.B., and family. The house, as its name implies, stands on a high eminence in Surrey, and commands extensive and magnificent views of the Sussex Downs in the distance, and especially of two historical elevations, the "Chanctonbury Ring" and the "Ancient Camp Ring," and of much of the rich pasture and woodland scenery lying between. Although the area of the garden is but small (eight acres), the pleasure derived from this diversified and beautiful landscape is as much his lordship's possession as if it formed a portion of his small domain, and adds immensely to the beauty and interest of the position. This part of Surrey, by its homely scenes and quiet beauty, has attracted to itself, as residents, artists and men and women of letters of world-wide renown. It is not far from Tennyson's old home; Birket Foster, Robertson, Arthur Melville, Helen Allingham live, or have lived, hereabouts; and the residence under notice will be associated for all time with the name of George Eliot, who lived here from 1876 to 1880.

The house has been considerably enlarged and improved by his lordship. Its architectural appearance, with its Virginian Creeper-clad walls, appeals to one's sense of homeliness and comfort more than to any sense of grandeur. The same may be truly said of the garden. The mature growth of its trees, its immunity from objects which might offend the eye are complete—not a building nor a jarring feature is to be seen—nothing but trees, pasture land, and hills: a pleasanter or a more restful outlook it would be difficult to conceive.

The garden was laid out about 50 years ago by Mr. Paxton (afterwards Sir Joseph), and presents many features of interest. The boundary plantation here is one of the best examples I have seen of the possibility of shutting out from view undesirable objects in a difficult position by intelligent planting. As already mentioned, the gardens are of limited extent, and are bounded on one side by a public road leading from Godalming to Haslemere, on another by the London and South Western Railway and Witley Station, on another by a public lane, and on another by a private residence. Yet so cleverly has the work of planting been thought out and executed with the object of securing privacy that, once inside the grounds, this object is as effectively secured as if the garden were in the heart of Sherwood Forest, near Clumber, the ancestral home of his lordship's family. This miniature wood not only ensures this useful purpose, but it forms a glorious setting or framework to the whole garden. The side of it facing the garden is planted with choice Conifers, hardy flowering trees and shrubs, forming a delightful bank of evergreen and other trees. The plantation is formed of Scotch and other Pines, with here and there introduced a few Oaks, Spanish Chestnuts, Beech, Limes, Robinias, &c. These have now attained to considerable height, and form conspicuous and handsome objects towering, as some of them do, high above the dwarfer growth of the Pines. The wood is intersected with many informal, winding paths, the margins of which teem in spring with Daffodils and other bulbous and early spring flowers. In summer it affords refreshing shade, and in autumn the brilliant colours of the deciduous trees, in contrast with the pleasant green of the Scotch Pines, forms a picture which is most pleasant to look upon, and the shelter afforded to the house and garden by the trees is invaluable. There is one other instance here of successful screening by planting that I will mention. The stables are too near the house, forming an objectionable feature on the carriage side entrance. The space at disposal was too contracted to plant them out, and to build a wall was out of the question, so it was determined to erect a high, wooden screen made of small, diamond-shaped lattice work, against which Irish Ivy was planted. This is now densely covered, and an object of pleasure to look upon, as well as having effectively secured the object in view.

The pleasure ground, although of limited extent, is replete with objects of interest and beauty. The lawn in front is on an acutely sloping ground, and the front of the house is supported by a terrace of moderate dimensions, its bank being planted with St. John's

Wort instead of grass. From this terrace and the drawing-room windows opening on to it a glorious view is obtained of the distant scenery mentioned before, as well as a delightful bird's-eye view of the whole of the grounds. On the right, opposite to Mrs. Farnham's boudoir, is a fine group of old Scots Pines standing at wide distances apart, with glades and vistas between. As is the nature of this Pine with age, its trunk becomes bare of branches, and in several cases advantage has been taken of forming circular flower beds with Ivy sides round their base, in which are planted the more hardy and vigorous Clematis, such as *C. Jackmanii*, *C. flammula*, *C. montana*, and *C. vitalba*, to climb up the stems. These, with the dwarf spring and summer flowers planted in these beds, give a touch of life and colour to these vistas amongst the trees which is particularly pleasing, reminding one of the pretty effect produced in many gardens on the Riviera by planting Banksian and other Roses against old Olive trees in the same way.

Here also there is a charming corner carved out of a bank and a part of the wood. It is approached by massive stone steps, and furnished with carved stone seats, the whole surrounded by banks, beds, and vases of beautiful flowers: a restful corner on a warm summer's day. Further on, at the end of this walk, is a pretty little garden of Heather—truly representative of many Heather-clad hills in the district. Lower down the lawn advantage has been taken of an opening in the face of the wood to indulge in a little picturesque tree planting for colour effect, the Golden Elm, Purple Beech, *Prunus Pissardii*, *Acer negundo variegatum*, and others of attractive colouring being utilised for this purpose. At the base of the lawn, and forming a margin to the wood at this point, a new bamboo garden is being formed, which, in the course of a few years, will not be the least interesting part of the garden, if the many choice varieties which have been planted grow with the same luxuriance as do the many older specimens to be seen in the grounds. On other parts of the lawn handsome specimen Conifers stand alone, adding a dignity and stateliness to the domain. These are presumably forty or more years old, and include, amongst others, *Cedrus deodara*, *Abies Pinsapo*, *A. concolor*, and *Picea orientalis* (very fine), *Cryptomeria japonica*, *Cupressus macrocarpa*, *C. Lawsoniana*, and *Sequoias* (Wellingtonias). Below the lawn is the tennis-court, sheltered on the lower side by the plantation already mentioned, and made attractive on the side next the house by planting the low wall which supports the bank with spring and summer flowers and by a plantation above the wall of flowering shrubs, including many of the best and rarest varieties of *Rhododendrons*.

FLOWER GARDENING.

Of formal flower-gardening there is little, and what there is is confined to the terrace already mentioned. The beds here were planted last summer chiefly with pink and bronze, fibrous-rooted *Begonias* over carpets of *Alternanthera*, *Mesembryanthemum*, and *Pyrethrum*. If there is not much formal flower gardening, abundant use is made of spring and summer flowers by the introduction in an informal way of numerous beds for *Roses*.

and spring and summer flowers are introduced into points of vantage in many parts of the lawn, and by the side of walks, where, in association with broad glades of beautiful turf and elegant trees, the effect produced is more pleasing to look upon than when planted together in large groups or masses.

The parts that vases are capable of fulfilling, when artistically-planted and well looked after, in the embellishment of a garden are not, perhaps, sufficiently recognised. Here they are made a leading feature, not only on the terrace, but in many other points of vantage are they placed in the grounds, where flashes of bright colour help to illumine the sombreness of so much green foliage.

The kitchen garden is situated below the tennis court, and is approached by two winding walks skirting the wood on both sides, and is entirely hidden from the pleasure grounds. On the way the visitor passes under many arches that in summer are laden with flowers. In the kitchen garden flowers again dominate the scene, for a central walk, a hundred and forty yards long, is canopied over all its length at short intervals with arches of Roses, Clematis, Loniceras, and many other climbing plants, which, with the wide herbaceous border on either side planted with autumn and summer-flowering plants, present a sight of flower-colouring which may be imagined but cannot easily be described.

The kitchen garden is small, but the most is made of the land. It is never allowed to remain idle; as soon as one crop comes off another is ready for planting. Salad growing is an important item of work. I was agreeably surprised to come across an old Salad plant that I had not seen for years, namely, the rat-tailed Radish. It used to be grown in most gardens thirty years ago. Its long, rat tail-like pods when young taste much like Radish, and are excellent for summer salad and a good substitute for Radish in hot weather, when it is often difficult to have these latter in good condition. They are grown in a row and supported by sticks like Peas. The soil of this garden is very light, composed chiefly of sandy peat, much like that at Wisley. Seeing how well vegetables, and hardy fruit also, succeed in this garden after years of good culture and manuring, I have now confidence that in the course of a few years, under the same processes, the land at Wisley will become equally productive.

The glass department consists of a block of moderate-sized houses built a few years since by Messrs. MacKenzie and Moncur. With the exception of three divisions for fruit (Vines, Melons, and Cucumbers) the whole is devoted to the growth of plants for house and table decoration, such as Palms, Codiaums (Crotons), Cordylines (Dracenas), Ferns, and a host of other plants which are now in request for this purpose.

One division is devoted to winter-flowering Carnations, the varieties favoured being Enchantress, Fair Maid, Mrs. Patten, The Belle, Lady Bountiful, and G. H. Crane. Another is devoted to Begonia Gloire de Lorraine; these and all the other plants were in a most healthy condition. Very good use is made of the old *Campanula pyramidalis* (blue and white) for indoor and out-of-door decoration. I have not seen such good plants of this old favourite since the time I saw the fine specimens Mr. Bruce Findlay used to grow at the Manchester Botanical Gardens years ago. There has been a good deal said for and against Messrs. Sander's new *Nicotianas*, introduced a few years since. Here they are much valued, and are splendidly grown, and are used for indoor and outdoor decoration. The colours are distinct, clear, and brilliant, mauve, pink, and rose.

The pleasure derived from this interesting and well-kept garden is greatly enhanced by the effective services so unassumingly and pleasantly rendered by the head gardener, Mr. James Binnington. O. T.

ORCHID NOTES AND GLEANINGS.

DENDROBIUM DARTOISIANUM.

THIS species described in the *Gardeners' Chronicle*, June 16, 1906, from plants collected by Mr. G. Bronckart in Indo-China in 1905, has lately flowered in Dr. Gordon Paterson's garden, South Lodge, Ascot, and proves to be a close ally of *D. tortile*, and especially of the inferior variety found on the Arracan Hills (see Veitch's *Manual of Orchidaceous Plants*, *Dendrobium*, p. 81). The original *Dendrobium tortile* was illustrated in the issue of the *Gardeners' Chronicle* for December 4, 1847, and the accompanying note states that it was imported by Messrs. Veitch from Java. This is an error, as the species was collected for Messrs. Veitch by Thomas Lobb in the Mergui district in Tenasserim, probably after he had left Java.

The species is recorded from several localities, and the quality of the flowers appear to become poorer in the more northern localities.

D. tortile Dartoisianum differs mainly from the type in its sepals and petals having a yellowish tint, suggestive of the allied *D. Hildebrandii*, but the botanical features, including the short green column, with its deep purple anther-case, agree well with the type, after allowing for even less variation than is known to exist in *D. nobile* and some other species of the group. J. O'B.

DENDROBIUMS AT FIR GRANGE.

DENDROBIUMS flowering in the Orchid houses of W. A. Bilney, Esq., Fir Grange, Weybridge Heath (Gardener, Mr. Whitlock), are even more beautiful than in former years, the main house being literally crowded with the beautiful blooms of these spring-flowering Orchids. Prominent in the display are half a dozen specimens of *Dendrobium nobile nobilissimum* and smaller plants of the pure white, and other leading kinds. The examples of *D. Wardianum* are bearing strong flowering spikes, and among them white forms are seen. Two specimens of the best form of *D. fimbriatum* have their erect slender pseudo-bulbs furnished with graceful sprays of orange-coloured flowers that are tinted in their centres with deep maroon. Exceptionally well-bloomed species, including the showy *D. albo-sanguineum* which many cultivators fail to keep in health, with pseudo-bulbs over a foot in length, and with three to four spikes on each, were noticed. Of the hybrids, the charming *D. Kenneth*, the rare cross between *D. Bensoniæ*, and *D. MacCarthiæ*, raised by Norman C. Cookson, Esq., has probably never appeared before in such beauty as at Fir Grange. The plant is bearing two long pseudo-bulbs that are densely studded with the elegant cream-white, violet-centred flowers, with often five blooms on a single spray. Varieties of *D. Wiganianæ*, including the yellow *D. W. xanthochilum*, are all luxuriating; a mass of the yellow *D. Melpomene* is covered with bloom; forms of *D. melanodiscus*, *D. xanthocentrum*, *D. Bryan*, *D. Sibyl*, *D. Juno*, *D. splendissimum grandiflorum*, and its numerous allies; *D. Ainsworthii*, Hazelbourne variety, a splendid white form with purple disc; a very richly-coloured *D. Venus*; the pretty *D. Bilneyi* (*tortile* × *Ainsworthii*); a magnificent form of *D. Findlayanum*, with a very large labellum the greater part of a deep orange colour, and several other little-known hybrids form part of the display.

Although *Dendrobiums* are the favourite, *Odontoglossums* and other Orchids find a place at Fir Grange, and in a cool house plants of the fine old type of *Cypripedium insigne* are in bloom, together with several of *C. insigne Sanderianum*. Plants of *Odontoglossum crispum* and *O. Pescatorei*, one of the latter bearing flowers with a lip beautifully marked with violet; the scarlet *Ada aurantiaca*, *Colax jugosus*, *Odontoglossum Uro-Skimeri*, *O. Adrianae*, *O. triumphans*, *Cymbidium eburneum*, &c., and

a very bright *Laelio Cattleya Myra* with others are in bloom in the intermediate house. In the cool *Odontoglossum* house is seen a batch of *Miltonia vexillaria*; the individual plants sending up their spikes in profusion. This plant is usually housed in a warm structure, but it is not often seen in better condition than in the cool house at Fir Grange.

THE ALPINE GARDEN.

GALANTHUS NIVALIS FLAVESCENS

FL. PL.

ALTHOUGH one can hardly say that the so-called "yellow" Snowdrops, i.e., those which have their spathes, ovaries, and deltoid and other markings yellow instead of green, are more beautiful than the white ones, they have yet a brightness and a charm about them which give us pleasant variety.

Of the best-known *G. nivalis lutescens* and the taller and more robust *G. n. flavescens* are among the finest, although existing only in a few gardens.

Still less common is the double form, which came from a Cheshire garden originally, and which has large and pleasing double flowers, even finer, I think, than those of the ordinary double Snowdrop. I received a few bulbs some years ago from the owner of the garden on condition that I did not reveal his name, so that I am debarred from giving the origin of this Snowdrop in a fuller manner. Since that time, it has given me great pleasure, although some of the offsets seem to have reverted to the typical white and green. Still, a few of the bulbs yield flowers with yellow ovaries, spathes, and markings. The outer segments are so open that between them peer the yellow deltoid markings of the inner ones, giving a bright and pleasing effect.

This year one little group of this double "yellow" Snowdrop has produced an offset which has a single bloom, and is exactly the same as the variety called *flavescens*.

As a curiosity, this double variety is welcome, but it has an intrinsic beauty in addition, which will recommend it to those who take pleasure in this flower of the early season. S. Arnott, Sunnymead, Dumfries.

COLCHICUM CROCIFOLIUM.

THERE is a good deal of confusion existing among the *Colchicums*, or Meadow Saffrons, and in writing of one of them under the above name I am doing so with the reservation that I am open to conviction that I am wrong, especially as I have known it for many years as *C. crociflorum*, which is referred to *C. alpinum* by modern authorities; while Mr. Baker gives *C. crociflorum* as apparently synonymous with *C. montanum*, and *C. crocifolium* as a form of the same species. The name of *crocifolium* answers better to the character of the foliage than does that of *crociflorum* to the flower.

Whatever the name, however, this is one of the most distinct of the small Meadow Saffrons, and its value is increased by its coming into flower in the early days of the year. Sometimes if one orders *C. crociflorum* or *C. crocifolium* one receives a purple-flowered plant of greater dimensions, but not distinct from *C. alpinum*, and to all appearance a form of that plant; while the one under notice has a smaller and more beautiful bloom, which is white, prettily lined with dark purple, almost black, on the exterior of the segments. The leaves, which appear in spring, are narrow and more *Crocus*-like than those of the other plant. This is a comparatively scarce *Colchicum*, and one which, were it a little cheaper, might be worth planting in quantity, but for one fault. This is that the flowers are keenly sought after (if one may use the term as applied to gastropods) by slugs and snails, and it is difficult to ward off these vermin. They seem to scent this *Colchi-*

cum afar off, and its attraction to them is evidently as great as is that of *Bulbocodium vernum*. I find nothing so serviceable as a notched zinc ring, or one made of brass wire gauze placed round the plants and sunk deeply enough in the soil to prevent the slugs from entering beneath the ring.

This *Colchicum* flowered with me in February this year, but in milder seasons I have had it in flower in January. *S. Arnott, Sunnymead, Dumfries.*

SEEDLING HIPPEASTRUMS AT OAKWOOD, WYLAM.

THE *Hippeastrums* illustrated at fig. 88 represent a batch of seedlings raised at Oakwood during the past three or four years. Mr. Cookson, the owner of Oakwood, purchased the two varieties Queen Alexandra and Mrs. Bilney, both of which received an Award of Merit from the Royal Horticultural Society on April 22, 1902, and intercrossed them, the offspring being the striped and

able during January and February, in which months nearly 200 plants were in flower. I have recently been successful in flowering plants of *Hippeastrum* × *Vallota*. They are exceedingly useful and like a miniature scarlet *Hippeastrum*, the *Vallota* parent being more pronounced in the habit of growth. The flowers of these hybrids have not shown much variation in colour, the most remarkable being some of pure white. *H. J. Chapman.*

FOREIGN CORRESPONDENCE.

EREMURUS CHINENSIS.

THE *Eremuri* are distributed principally throughout Russian Central Asia and Persia: a few are found in West Asia, the Caucasus, and the Crimea, the *Altai*, the Himalaya and British India. None has previously been known from East Asia.

Great was my astonishment, therefore, when

those where Pratt found it, in the province Kansu, June 26, 1885 (village Tsui-tsei, below Siguchen), and in the Province Szechuan, July 15, 1893, between Va-sy-kau and Tsa-li, and July 26, 1893, in the valley of the river Siao-dshin, between the villages of E-za and Pany-sha-myr.

Potanin's samples all have roots (which consist of fleshy, stout, fusiform fibres), leaves, and are all in fruit. However, to one of them was hanging a clump of dry flowers. Crushed though they were, they showed that the plant was really an *Eremurus*, and, moreover, different from any one known before.

The flowers are about the size of those of *E. Olgae*, but have narrower segments. The filaments are very thin above, gradually a little broader towards the base. The spikes bear fewer flowers than those of *E. Olgae*. The pedicels are more horizontal, curved near the capsules, which are erect. The bracts are naked, short, broad at the base and thin from about one-third of their length. The leaves are



FIG. '88.—MR. N. C. COOKSON'S HYBRID HIPPEASTRUMS.

blotched varieties represented in fig. 88. Many of the plants, although flowering for the first time, have developed two scapes with four flowers each, the individual flowers being fine in substance and form, and many of them measuring 8 inches in diameter. The colouring has shown a remarkable variation, some had deep orange-red blotches, whilst others possessed various purple shades. The darker flowers are the result of intercrossing a purple seedling with the variety Plato, and several from this cross have been remarkable for the absence in the flowers of the green markings usually seen at the base of the tube, the green being replaced by a deep purple shade that is continued to the base of the flowers. No special facilities exist at Oakwood for growing the plants; they develop their growth in the stove, and when this is finished they are removed to an exposed position in the greenhouse to become matured by the time the house is required for winter-flowering plants. The flowers are found especially service-

my son, Boris Fedtschenko, Chief Botanist of the Imperial Botanic Garden here, who, during his journey abroad last summer, took notes for me on the *Eremuri* of the principal herbaria of London, Paris, and Geneva, brought me a sketch and description of a plant, gathered by Pratt, June 9, 1891 (Nos. 144 and 728), in China (W. Szechuan and Tibetan frontier, chiefly near Tachienlu). The plant, consisted of spikes in fruit and leaves, flowers and roots being absent; it reminded me in its habit of *Eremurus sogdianus*, but was certainly different from it. Further information, which was kindly given me at the Royal Gardens, Kew, led me to believe that the plant was nearer to *E. Olgae*. However, the roots and flowers being wanting, I could not identify the plant, until I received, about two months ago, from Mr. W. Komarow (of the Imperial Botanic Garden), who is studying the Chinese herbaria here, three specimens of the same species, gathered in 1885 and 1893, by our famous explorer in Mongolia and China, G. N. Potanin, in nearly the same localities as

very different from those of all other species: they are keeled, but thin and flaccid; in one sample they are very narrow ($2\frac{1}{2}$ to 3 millimetres), in the two others they attain $10\frac{1}{2}$ millimetres, are broadest at about one-third of their length, and from there gradually diminish upwards, and are filiform at the end. They are naked on both sides and also on both edges, and have a stout nerve on the edges. The whole plant is about 65 to 75 centimetres high; the spike in fruit on the largest sample more than 40 centimetres long, and $6\frac{1}{2}$ centimetres broad; the stem about 5 millimetres thick.

The roots in two of the samples are normal; the third presents a curious anomaly: each new ring of fibres stands 1 or 2 centimetres higher than the older roots. I can explain this fact only by supposing that the crown of the plant has been overwhelmed by sand or buried by mountain debris, and that the new roots of two consecutive years have tried to grow nearer to the surface of the earth.

The description and figure of this interesting

new species will be given in my large work on the *Eremurus*, which is in the press and will appear in the *Mémoires de l'Académie Impériale des Sciences de St. Petersbourg*. In sending these lines to the *Gardeners' Chronicle*, I wish to bring the new plant before the attention of those who have the opportunity of gathering plants in China: perhaps someone may be so fortunate as to gather the plant at an earlier season, when it may be found in flower, and he will then be so kind as to send me some dry (herbarium) specimens of it. *Olga Fedtschenko, St. Petersburg, Imperial Botanic Garden, March 5 (February 20), 1907.*

FASTIGIATE TREES.

(Concluded from page 185.)

EVERGREEN VARIETIES.

ABIES PECTINATA PYRAMIDALIS.—So far as I have been able to judge, this variety of the Silver Fir is very uncommon in Britain. I had not met with it until two years ago, when I saw it in the Arboretum of the late Mons. Lavallée, at Segrez, France. Here there is a very striking specimen 30 feet high, narrowly pyramidal, and tapering to a fine point like a spire. In the valley of the lower Thames the Silver Fir grows so badly that it would not be worth while to plant this variety there. But where it would succeed, as in most of the Scottish gardens, it would make a welcome change from the Irish Yew, the erect Lawson Cypress, and the few other evergreen trees of this class.

TAXUS BACCATA FASTIGIATA (IRISH YEW).—The best-known and most valuable of all evergreen fastigate trees is the Irish Yew. It is especially useful for forming minor avenues within the garden, and as "sentinel" trees guarding the entrance to formal gardens, etc. It can, indeed, be only used in more or less formal arrangements, especially in a young state, when it grows in the form of a very slender cone. Old trees become cup or vase-shaped. The variety originated at Florence Court, in Ireland. It differs from the common Yew not only in habit, but also in the arrangement of the leaves, which, instead of being in two opposite rows, are set all round the shoots. Of several sub-varieties, the "Golden Irish Yew" is the best, its leaves being edged with bright golden yellow. The "Silver Irish Yew" is a poor thing. The best way to propagate the Irish Yew is by cuttings, but a certain proportion of its seeds come true.

CUPRESSUS LAWSONIANA.—There is quite a distinct group of erect-growing varieties of the Lawson Cypress, some of which are very useful. One of the most popular of these is *erecta-viridis*, sent out many years ago, I believe, from the Knap Hill Nursery. In our colder latitudes it makes the best substitute for the Cypress of Southern Europe (*C. sempervirens*), whose dark, columnar shape forms one of the most characteristic features of Italian gardens. The variety *Allumi*, or *Fraseri*, is distinct and handsome, not only for the erect mode of growth, but also for the fine glaucous hue of its foliage. Var. *Wisselii* is a curious plant of dwarf yet erect habit, strangely distinct from the type, and resembling some of the dwarf forms of *Cupressus* (*Retinispora*) *obtus*.

PINUS.—There are but few instances of fastigate growth among the Pines. The Scots Pine (*P. sylvestris*) has, however, sported into an erect form of tapering, spire-like habit. There is also a variety of *P. Laricio* (the Corsican Pine), which, whilst not exactly fastigate, still differs from the type in its main branches, taking a vertical instead of a horizontal direction. This variety is grown at Kew as *Pallasiana*. Large masses of the same variety (grown as *caramanica*) in the woods of Les Barres, and planted over 60 years ago by one of the De Vilmorins, show the same character in the more frequent forking of the trunk, although

the trees are grown, like other varieties, only a few feet apart.

JUNIPERUS COMMUNIS FASTIGIATA.—This, the Irish Juniper (often called *J. hibernica*), is an old and well-known plant in formal gardens. It is, perhaps, the most purely columnar of all trees hardy in this country, its diameter varying but little from bottom to top. In a small



FIG. 89.

PYRAMIDAL FORM OF THUYA PLICATA (GIGANTEA).

state it is peculiarly dense and rigid—in fact, almost solid—and one of the most remarkable of this class of plants. The finest specimens I have seen are in Scottish gardens: at Abercainey, in Perthshire, for instance, there is a specimen forming a rigid column 20 feet high and 3 feet through, and there is another fine example in the gardens of Scone Palace. This

variety preserves the light greyish colour of the type.

CEPHALOTAXUS PEDUNCULATA FASTIGIATA.—As a companion tree to the Irish Yew, this upright *Cephalotaxus* is well worth growing. Its leaves, however, are larger, and in habit it is broader and sturdier. The arrangement of the leaves on the branchlets is also the same, being set all round, as they are in the Irish Yew, and not in the two opposite rows of the type. It does not, apparently, grow so fast or so tall as the Irish Yew, and for certain positions in formal arrangements it may be preferable to it. Once considered a distinct species, it was named *C. Burgeri*. In gardens it is also known sometimes as *Taxus japonica*, and has been called a *Podocarpus*.

THUYA GIGANTEA PYRAMIDALIS.—Among the Conifers with an erect Cypress-like habit, this is one of the best. The specimen illustrated (fig. 89) was sent to Kew by the late Mr. Harry Turner, of Slough, who thought highly of it. It is now 15 feet high. Although not a well-known plant, it is a very worthy companion to the erect variety of Lawson's Cypress.

BUXUS SEMPERVIRENS PYRAMIDALIS.—Grown as an isolated plant, or associated in the ordinary way with other shrubs, this variety of the common Box is hardly worth its room, being stiff and inelegant, without the distinctive formal character of a good fastigate plant. It has, however, proved useful as a hedge plant, and a hedge of Box is a pleasing change from the few other evergreen plants that can be used for the purpose.

It is probable there are fastigate forms of other common trees in the country not yet known in commerce. For instance, Mr. W. Goldring has lately informed me that there is a fastigate Spanish Chestnut at Mount Mascal, Bexley, but I do not know any such forms of the following:—Sycamore, Ash, Turkey Oak, Durmast Oak (*Quercus sessiliflora*), Laburnum, Walnut, Pear, and Apple. There is a variety of Lime known as *pyramidalis*, but I do not know of a really fastigate one. And there are also some of the seedling forms of Lucombe Oak that have a markedly pyramidal shape when young. *W. J. Bean, Kew.*

THE PRUNING OF ROSES.

(Concluded from page 182.)

AYRESHIRE Roses are of true running or rambling habit, and as isolated specimens on lawns I have seen some of them as most beautiful objects worked on stems 8 to 10 feet high. They are equally useful for covering unsightly buildings, old tree stumps, &c. The weakest growths require to be thinned out; also the soft tips should be removed from the vigorous shoots at the end of March.

Boursault Roses, of which *Amadis* and *Inermis* are thornless, blooming in immense clusters, were the two first Roses to be impressed on my mind. This type requires very little pruning. Keep them well thinned, and cut away all dead wood, removing also the tips from very vigorous shoots.

POLYANTHA ROSES.

Polyantha Perpetual, of which *Gloire des Polyantha*, *Mignonette*, *Schneewittchen*, &c., are types, vary little in growth. Like the Hybrid Perpetuals, they are short and compact, and will be all the better for close pruning. April will be soon enough to commence, cutting the strong shoots back to 3 or 4 eyes, and dealing with the weaker shoots correspondingly.

If I were writing a description of Roses generally, I would give the beautiful *Lucida* a prominent place; the duplex variety is attractive and beautiful. Little is required in the way of pruning beyond thinning and regulating its branches.

Rosa rugosa, and its many hybrids, are exceedingly hardy, and the handsome seed

Pods follow equally attractive flowers. All that is really necessary in this section is to thin out the shoots occasionally and to shorten the long, straggling shoots in order to give symmetry to the bushes. Such work may be done during the present month.

Chinese, Monthly, or Bengal Roses are more variable than those of any other class. Unless the operator has a distinct knowledge of the variety he is dealing with, he cannot suitably prune them. Generally speaking, the old shoots should be thinned out in the autumn, and the strong shoots shortened to 12 inches early in April: the medium-sized ones to 8 inches, and the weakest to 3 or 4 inches; but, as an instance, it would not do to prune the common China or Monthly Rose in the same way as you would treat Laurette Messimy, or Aurore and Madame Eugène Resal. Queen Mab again is distinctly different in its requirements to the beautiful

Ophirie are types, and these should not be pruned until April. Thin out the weak shoots, and shorten the tips of the strong ones. In the case of dwarf varieties hard pruning is detrimental, and if the strong shoots are cut back to 1 foot in length and the medium and weak shoots to 8 and 3 inches respectively, that is all that is required.

Scotch Roses of both double and single flowered varieties form excellent hedges, and as their growth is of a close nature, the weakest should be removed and the long shoots slightly shortened.

Hybrid Sweet Briars, in these gardens, form a screen upon Fir poles and stout galvanised wire. Some of the growths reach a height of 12 to 18 feet, and no more beautiful sight can be imagined than these when they are in full bloom. After the flowering period, many growths may be cut out, or the work may be done at the present time, thinning out the weaker shoots and shortening those that are more vigorous.

Where large single and isolated specimen Roses are required, standing out alone with plenty of light and air about them, they are as a rule best left unpruned. The growths, when too crowded, may be readily staked out. This form of growing Roses might be more frequently practised on the grass. It is the more natural, and compensates the cultivator with a rich display of flowers. *W. H. Clarke, Aston Rowant, Oxon.*

SIDE-GRAFTING.

CONSIDERING the advantages derived from this method of grafting, it should be more often practised by the fruit-grower.

Frequently the shape of a tree is spoiled owing to the absence of one or more branches which cannot be replaced by any system of pruning.

This is particularly noticeable in trees that have been negligently pruned in their earlier stages of growth—when the foundation of a well-balanced tree should be laid in weak-growing varieties, and also in those of a straggling habit.

Side-grafting is as easily performed as the ordinary crown-grafting.

The scion should be of fairly strong wood, taken from the same tree as it is to be inserted on or from another of the same variety, and should be about 6 inches in length.

A slightly curved scion is preferable, and it should be cut so that when it is grafted the top bud points outward from the centre of the tree. In selecting a position for inserting the graft, choose a branch as near to the outside of the tree as is possible, and in the bark of this branch, facing in the same direction, cut a T-shaped incision, making the transverse cut uppermost.

If the edges of the bark are then slightly lifted with the handle of a budding knife, the scion, which should be previously prepared, can be easily pushed into position.

A piece of strong bast should be bound round the graft, but it must not be tied too tightly, and a band of clay or grafting wax will finish the operation.

If a few strands of bast are tied around the clay, they will serve to keep it together.

The best season for this method of grafting is in March or April, when the sap is on the move, but I have had very good results in the case of Apple trees by grafting early in May. The scions in this latter case should be taken in winter, and be laid in on a north border till required.

As the buds on the scion develop into growth a small stick should be tied to the main branch to afford support, and to minimise the risk of damage by wind. *Chas. Jones, Norwood Villa, Bourne.*

VEGETABLES.

STRINGLESS AND HARICOT BEANS.

In most homes in this country Beans are sliced before being cooked, but this is not necessary with

the stringless and Haricot Beans; indeed, not with any if the pods are gathered young and cooked whole. This is worth noting, as by allowing the French or runner Bean to get matured and then cutting up the pods much of the quality is lost; far better cook them when quite young. By doing this less strain is imposed on the plants, and they are therefore capable of yielding a longer time. If addressed to market-growers I fear my advice would meet with little favour as the pods are liable to receive rather rough treatment, but in private gardens this is not the case. On the Continent the Bean is regularly served whole, and is delicious. It is cooked in several ways and made most tempting to the palate. The pods cooked young are much greener and far more tender. The stringless podded Beans are much rounder than the ordinary kinds and more fleshy. The seeds are less prominent, and they remain tender for a longer time than the flatter kinds. The plants also have a more branching habit, and are enormous croppers. The plants like a rich rooting medium, and liberal supplies of moisture in dry weather; damping



FIG. 90.—SIDE-GRAFTING, SHOWING THE INSERTED SCION.

new Field Marshal recently sent out by Messrs. Wm. Paul & Sons. Before pruning this class of Rose consider very carefully the habit of each individual variety and prune it accordingly.

Bourbon Roses have been increased largely in recent years. Many of them are very strong growers, the variety Robusta being an example. In such cases the extra strong shoots emanating from the base require shortening one-third their length, and existing and permanent growths covering walls, &c., should have the new shoots pruned to 3 eyes. The weaker and more bushy kinds should be pruned somewhat more severely.

The true Noisette Roses, being very hardy, are particularly free growers and bloomers, often continuing in flower for months together. They may be divided into two distinct sections—the climbing and dwarf growers. Of the former type, W. A. Richardson, Bouquet d'Or, and



FIG. 91.—SIDE-GRAFTING, SHOWING THE ADDITION OF THE CLAY.

overhead late in the day will greatly benefit the dwarf kinds, but as their culture is so simple I need not enumerate the details. I advise two or three sowings, the first to be made in April, the second in June, and the third early in August, using the dwarf kinds for the last sowing. There should then be a succession of good pods from May till October.

In mentioning a few reliable kinds I will note the climbing varieties first. These are not numerous, and they are closely allied to the dwarf type. Two very good stringless Beans grown last season included Carter's "July," which was not unlike the Butter Bean in form, the pod being very fleshy and of medium size, the seeds very small, and the plant freely productive. This is a delicious Bean when cooked whole, and it does not get old so quickly as a non-stringless Bean. The older Princess—a small, white-seeded variety—is well worth a trial. The pods are not large but stringless, and when nearly full grown are excellent when cooked whole, but I do not mean when the seeds have

matured. They have a delicate flavour, and do not grow so tall as the ordinary runner; for gardens limited in size they are most useful. The tall Sugar Bean is closely allied to this one, being very fleshy and stringless.

Of dwarf kinds there are many good ones. Sutton's Perfection is a splendid variety, with pods almost round, extremely fleshy and succulent. The plants branch and crop freely. Another of the same type, named Plentiful, is a good early stringless variety having a long, broad pod, and it is a great cropper; a grand Bean for sowing in April or June. The dwarf Holborn Wonder is also a good Bean on account of its deep green pods and its great cropping qualities. It is not unlike the Canadian Glory in size and good cooking qualities. Canadian Glory is one of the best forcers in this section: the pods are quite stringless.

Though somewhat different from any of the above there is a very fine type of dwarf Bean grown under the name of Green Gem; this is a great favourite in the Paris market, and it is a splendid Bean when gathered young, and cooked whole. The seeds are pale green and are much liked in a dry state on this account.

The Haricots are not great favourites in this country, but they are valuable. The large, white Haricot has a long broad pod, with good sized seed produced in abundance, which are appreciated in a dry state. The miniature Haricot is worth a trial, being a dwarf variety and more branching. It is later than the large white, but the plants yield a great crop of small tender pods which are delicious when cooked whole, and the dried Beans are useful for consumption in winter. G. Wythes.

POTATO TRIALS AT WISLEY.

THE council of the Royal Horticultural Society having again this year emphasised their previous instruction to the Fruit and Vegetable Committee, that, with several other vegetables, no awards can be made to Potatoes until grown for trial at Wisley, it may well be hoped, first, that Potato raisers will please note the uselessness henceforth of sending samples of new or other varieties to the Horticultural Hall for award; also that the council, in thus insisting on such Wisley trials, will spare no expense to see that such trials shall be full and complete. Those persons who saw the interesting trials of Potatoes carried out last year by Messrs. Sutton & Sons, at Reading, could but wonder why others, on a similar scale, were not conducted on the R.H.S. ground at Wisley.

Now that a scientific gentleman has been appointed at Wisley, is it not possible for him to co-operate with the superintendent, Mr. Wright, and to devise some trials that shall have a distinct bearing on the interesting subject of the comparative deterioration in reproductiveness of southern-grown and planted tubers, especially as compared with tubers of similar varieties grown in Scotland, the Midlands, and Ireland? A matter of the very highest importance to southern Potato growers.

A start might be made this year in testing the relative value of the planting for seed purposes of immature or unripe tubers as compared with ripened tubers. To this end rows of new varieties, with some old ones, for comparison, and also rows of selected varieties obtained from the south of England, the Midlands, Scotland, Ireland, and other sources should be planted for comparison. Also there should still be planted separately short rows of 10 or 12 selected varieties, of which two rows of each variety should be provided, the tubers of the one row being lifted at the end of August or thereabouts, whilst the tops are still vigorous, and the skins of the tubers thin and tender, the tubers being saved and wintered; the other duplicate row being left to ripen fully, and the tubers lifted and stored also, both lots being replanted side by side in the following spring. Were such trials undertaken at Wisley we should have Potato trials of exceptional interest, and such as probably no other garden or field product so urgently needs. We must remember that a great home supply of Potatoes is a matter of the highest national importance, and certainly merits as much encouragement at the hands of our great horticultural society as do products from our highly-favoured colonies, perhaps, indeed, very much more.

Potato shows may be useful in their way, but trials of the nature indicated have far greater value. There is a fine soil, pure air, and ample room at Wisley. A. D.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Seed-saving.—These plants of the deciduous *Calanthes* which are bearing seed-capsules should be placed in a sunny position to mature and ripen the seed, and where the young growths have started they should be protected by a sheet of tissue paper. Immediately the pods appear to be bursting, tie some tissue paper around them to prevent loss of seed. When the seed is ripe, and the old flower stem commences to die down, cut the pod off and carefully preserve it in a dry place until the earlier potted plants are rooting freely, when the seed may be sown thinly over the surface of the compost. Keep the seed moist afterwards by means of the fine sprayer, and when they have commenced to grow, treat them as was advised in my last calendar for the older examples, but do not disturb them until after the resting season. Seedlings raised last year may now be pricked off.

Habenaria militaris, *H. rhodochila*, *H. Susanna*, *H. carnea*, and the pure white variety *nivosa*, now commencing to grow, should have the tubers turned out of their pots for re-potting. Those which have been grown and rested properly will have increased in numbers, and will require to be carefully divided, selecting the largest and strongest tubers for re-potting singly into pots, those known as long thumbs or medium 60's being the most suitable, but proportionately smaller pots may be used for the others. Several of the smaller tubers may be placed at equal distances apart in one pot. Place each tuber in an upright position, with its base resting upon the crocks which are used for drainage, the growing point being just below the rim of the pot. Fill up around the tuber with clean broken crocks to within 1 inch or 1½ inches from the top. Being surface-rooting plants, these *Habenarias* require very little depth of soil. It should consist of fibrous loam and peat in equal parts, adding some chopped sphagnum-moss, crocks broken up small, and coarse silver sand, and mixing all these ingredients together. When potting, press the materials down moderately firm, just covering the tuber so that its point may be seen through the compost. An occasional sprinkling with the fine sprayer will supply sufficient water until some growth has been made, when the quantity of water should be gradually increased until the plants are in full growth, when they require an almost unlimited quantity. Much heat should be afforded the plants during the growing period, and a position as near to the roof-glass as possible, employing only a thin shade whenever scorching of the leaves is feared owing to bright sunshine. Syringe the under sides of the leaves pretty frequently.

The new *Bonatea* (*Habenaria*) *Uganda* will thrive under similar treatment. Plants now starting into growth will require rather large pots or pans in order to afford sufficient room for the unusually large tubers to develop properly. Growth will be very rapid, and when the flower spikes, which are terminal, appear, the plant should be gradually inured to a cooler atmosphere, and the flowers, if allowed to open in a sunny position in the intermediate house, will be of better substance than if left in the warmer division.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

The affording of water.—At this season of the year many plants are being repotted, some after a long season of rest, and that have at present little or no foliage to support. If the soil is in a proper condition of moisture at the time of using, such plants require no water, except such as they get from overhead spraying, until growth has commenced, and the roots are consequently active. Others having a moderate amount of foliage upon them must not be allowed to remain dry, although it is far better to err on this side in the case of newly-potted plants than to over-water them. If too much water is afforded, the soil soon becomes sour, and many plants never perfectly recover health. It is not too much to say that more newly-potted plants in pots are killed by over-watering

than by any other cause. Young men should think out for themselves the relation between the amount of foliage or bloom on the plant and the requirements of the roots, whether the plant is in full growth or not, and whether the pots are large or small. Unless a man studies the art of watering, he will never be a successful plant-grower. Many plants in pots, such as Palms, Cordylines, and similar strong-growing plants, perhaps standing in the same pot for years together, seldom or never have sufficient water; also grasses like *Isolepis*, *Panicum*, &c., &c., usually in small pots, should never be allowed to become really dry when in full growth.

Anthuriums.—Any plants requiring a shift may now be repotted, using a loose porous compost, consisting of two parts peat and one part turfy loam, with the addition of charcoal, crocks, sphagnum-moss, and sand. The pots or pans used may be half-filled with crocks, as perfect drainage is essential to the health of these plants. The ornamental-leaved section, of which *A. crystallinum*, *A. c. illustre*, *A. Veitchii*, and *A. Warocqueanum* are good examples, are handsome as specimen plants for the stove. They should be afforded a position where they can be shaded always from bright sunshine. Every care should be taken to keep the leaves clean, and free from insect pests, for even in sponging the plants it is difficult to avoid injuring the leaves. A fortnightly spraying with a good insecticide at moderate strength will be found the best means of keeping them clean. A thoroughly moist atmosphere is necessary, especially all through the growing season. The flowering section, grown for their brilliant-coloured spathes, are represented generally by varieties of *A. Andreanum* and *A. Scherzerianum*, the latter being the most useful, the plants, if in good health, flowering continuously over the whole season. Handle the plants carefully when potting them, as the roots are always more or less active, and should not be broken more than necessary. Any sour soil about the roots should be washed away. In repotting keep the crowns well above the compost.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Strawberry beds.—The plants are beginning to develop new growth. Contrary to the general practice, we always fork-in the manure between the plants at about this date, and have found no ill-effects to follow. Most soils require this treatment at the least once a year, owing to the frequent treading during the gathering of the fruit in mid-summer, especially if at such a time the weather is showery. Shallow digging also allows the spring showers to penetrate to the roots more evenly, and permits the sun and air to sweeten and aerate the ground. A quicker growth is thus promoted.

Alpine Strawberries deteriorate after a few years if increased by layers. Much better results are obtained from seedlings, and the same remarks apply to the "perpetual" fruiting varieties *St. Antoine de Padoue* and *St. Joseph*. The seed may either be sown in shallow boxes or in a cold frame, and the seedlings, when fit to handle, should be pricked out in frames, or on a warm border, at distances of 2 to 3 inches apart, and finally transplanted at a foot or 15 inches asunder. Such seedlings will bear fruit from August until November in the following year. All flower-spikes and runners should be cut off up to the middle of July, or even later, if it is wished to lengthen the supply of ripe fruits.

Mulchings.—Where a heavy surfacing of manure was spread over the roots of newly-planted fruit trees as a protection from hard frost, the material should now be cleared away and the soil lightly loosened by means of the fork, so that the sun's rays may the better accelerate root action. This mulch may be renewed two months later if it is considered necessary for the welfare of the tree.

The thinning of blossom-buds.—Some cultivators recommend the removal of some of the blossoms when they are in any degree crowded, considering it is an extra strain upon trees to allow all to expand, when perhaps only 5 per cent. are necessary to produce a full crop, provided of course that most of these latter set and swell satisfactorily. This may be good practice under glass, but, considering the fickle weather characteristic of spring, it would be

dangerous to adopt it generally in the case of outdoor fruit trees, except in respect to Peaches and Apricots, which, having no stem to their fruit, often set, but become deformed whilst swelling owing to pressure between the branch and the wall. The only flowers that I think may be safely dispensed with are those that facing inwards would have little or no space to develop if a satisfactory "set" was obtained.

The Apple store.—It is getting late to see firm fruits of British-grown Apples, but there are several varieties that will still compare favourably with foreign or Colonial produce. Such are Blenheim Pippin, Adam's Pearmain, Beauty of Kent, Alfriston, Newton Wonder, Bramley's Seedling, Annie Elizabeth, Claygate Pearmain, and Sturmer Pippin. Those intending to graft would do well to use scions of these varieties. To verify my statement, I am forwarding a fruit of each variety to the Editor of this journal.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

Protective materials may now be removed from most of the half-hardy plants and shrubs. Such subjects as have been heavily-covered should be gradually exposed. The leaves of Kniphofias which were tied up over the crowns should be unfastened. Cut away the dead ends of Pampas Grass leaves, trimming the clumps into shape. As the Gunneras show signs of growth uncover the crowns, but keep some protective material at hand for use next month, as the tender young leaves are easily damaged by frost. An occasional dressing with nitrate of soda during the growing period will materially increase the size of the leaves.

The flower beds will now require frequent attention. Where necessary, afford neat stakes to the Hyacinth spikes and many species of Tulips. Wind-broken flowers should be at once cleared away. A mulch of cocoa-nut fibre will prevent the rains from disfiguring the leaves by splashing the soil on them. If bordered by grass, the edge of the beds should be frequently clipped. Where there were not enough reserve plants to make good the winter losses—which have been unexpectedly large this season—blanks may be made good with sprays of Mahonia (*Berberis aquifolium*), which is now coming into flower. If pressed firmly into the ground, the sprays will keep fresh for a long time. For any special occasion short branches of *Laurustinus* may be similarly used, but it is comparatively short-lived.

Bedding Pelargoniums, &c.—Remove the earlier batches to a cool house preparatory to transferring them to cool pits after a week or so. Frequently pinch the leading shoots of standard Fuchsias and Heliotropes. Do not allow such ornamental foliage plants as the Castor Oils (*Ricinis*), Cannabises, Eucalyptus, &c., to become pot-bound. Complete the propagation of *Iresines*, *Alternantheras*, &c., at an early date.

Pruning.—Ivies which have furnished their allotted space should be cut hard back to the walls. Where there is space to be filled see that the shoots are securely fixed to the walls before the clipping is done. Shrubs which require severe pruning should now be given attention. Clip box-edgings and cut back borderings of St. John's Wort, which are already of full size, or this year's growth will make them too wide.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Pineapples.—Plants which are coming into flower require a dry atmosphere at a temperature of 70°, and a bottom heat of 80°; close the structure with sun heat at 90° early in the afternoon. Afford the plants warmed manure water once a week. As soon as the fruits begin to colour, lessen the supply of water at the roots, ultimately discontinuing it altogether. Succession-plants should have a moist atmosphere and regular degree of heat. Damp the paths frequently, and admit air only during sunny weather. Examine the plunging material, and if it is found to be dry, apply a good watering. Be careful not to overwater the plants.

Early Peaches and Nectarines.—The trees must not be unduly hurried whilst the fruits are stoning. Do not let the atmospheric tem-

perature exceed 65° at night and 75° by day until the fruits commence to swell for the second time, after which time the heat may be increased. Admit air daily when the weather is favourable, and keep the atmosphere of the house moist by closing early in the afternoon. Syringe the trees once or twice daily. Tie the young shoots to the trellis, and do not overcrowd them, but expose them to the light as much as possible. Extra strong shoots should be cut out. Thin out any fruits that are not needed, but were overlooked at the previous thinning; a space of about 9 inches should be allowed between each fruit, notwithstanding that a few fruits may drop during "stoning." Always select fruits for ripening which are on the sunny side of the shoot. Test the borders, and apply tepid manure water if necessary.

Peach or Nectarine trees in flower may be easily injured if exposed to currents of cold air. Apply fire heat only during night time. Pollinate the flowers at midday with a rabbit's tail, and give the trees a sharp rap with the hand at the same time. Keep the atmosphere rather dry, and the temperature at night 55° to 60°, allowing it to rise to 70° by day. A light fumigation with XL-All is an effectual cure for green fly, which must not be allowed to spread.

Cucumbers.—Plants in pits should have a compost of rich turfy loam, leafmould, and mushroom-bed manure, well mixed together and placed in a ridge in the pit to the depth of 12 or 15 inches. Plant on the top of this ridge, and increase the atmospheric temperature to 70° at night, allowing a rise of 10° by sun-heat during the day. Shut up and damp down the pits early in the afternoon. Plants now bearing fruit will require liquid manure twice a week. Pinch and tie-in the lateral growths, and keep the atmosphere moist. For Cucumber culture in frames, collect stable manure and leaves and throw them into a heap to ferment. Turn the material daily, and allow the excessive heat to escape, and the manure and leaves to sweeten before they are used for the Cucumbers. Sow seeds for raising succession plants.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Peas.—Sowings in larger quantities should now be made of the varieties of the second early section. I would strongly recommend that *Superlative* be given a trial. It grows 4 feet in height, is of robust habit, and yields an enormous crop. It was greatly admired here last season by all who saw it. Further sowings should be made at intervals of a fortnight, selecting those varieties which are known to succeed best in the district, but adding one or two of more recent introduction for the purpose of trial. Few vegetables have been improved more than Peas, and most of the principal seed-firms have introduced some superior sorts. Novelties are to be found every season in the lists, and the gardener should make a trial of them as far as circumstances will permit.

Early Peas.—Plants from earlier sowings now appearing through the ground, will need to be closely watched and protected from birds and slugs. A sprinkling of wood ashes or soot, and the use of Pea guards or strands of black cotton along the rows, will prove of great assistance in keeping these pests in check during the early stages of growth. Those that have been sown in pot, turves, &c., and thoroughly hardened, will now be quite fit for planting out if this has not already been done. The practice of sowing Spinach between rows of Peas is pretty general, and may be recommended. If it be followed, a good supply of this valuable vegetable will be obtainable throughout the summer.

Lettuce.—Continue to prick out plants from the earlier sowings. Make periodical sowings of both the Cabbage and Cos varieties in the open, according to the demand.

Radishes.—We have been using Radishes obtained from sowings made in the latter part of December last between rows of Potatoes in slightly heated pits.

Herbs.—Annual species such as Basil, Marjoram, Chervil, &c., and in some instances the perennials, where it is necessary to grow these from seed, should now be sown. It is advisable to have a good selection of herbs in cultivation,

and thus be prepared for a casual request; sow the seeds in lines, and subsequently thin out the plants as required. Little else will be required to keep up a small supply of those herbs that are seldom asked for.

French Beans that were sown, as advised in a previous calendar, for planting out in cold frames, or in houses, should now be given cooler treatment to harden them before they are removed to their permanent quarters. Great care must be exercised in handling the plants during the process of transplanting, which should be undertaken as soon as they are considered hard enough. The young plants, being extremely tender, are easily bruised and spoilt. Attention must afterwards be given to the provision of shading during the first few days, or until root-action takes place. Afford the plants protection at night time when frost appears likely, as they will be liable to suffer injury from this cause for some time to come.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

PREPARING FOR SUMMER GAMES.

In recreation grounds where the area is so restricted as to make it impossible to set aside special portions of the ground for summer and winter games, it is very necessary for the preservation of anything like a good sward to allow the ground to have a period of complete rest between the football and cricket seasons. In a great number of public parks this useful practice is not observed, simply because Park Bye-laws do not, as a rule, make any provision for this. The case is, however, one of many where the highest interests of everyone concerned are best served by taking for granted the right of the Council to impose restrictions upon the public for the public's good.

Practical measure.—From about the third week of March till the second week in May we prevent the playing of games upon any of the recreation grounds, and in this way we manage to keep the grass growing on ground that would otherwise become bare. As soon as possible after the close of the football season our cricket pitches are renovated, well beaten and rolled, and, where necessary, relaid with new turf. If football has been allowed directly over cricket pitches, they usually require much renovating, but when taken in hand early in the "close" season, they can be made fit for play under ordinary conditions by the time cricket is permitted in the parks. The ground for practice has to be treated in exactly the same way as ordinary pitches, and, owing to the great amount of play which takes place upon them during the cricket season, they are invariably in a much worse condition than the match pitches. The attention which is bestowed upon these pitches incurs a considerable outlay each year, but, as previously stated in these notes, the extra expense involved is amply repaid by the increased facilities afforded the players.

An experiment.—This season we are trying an experiment in connection with the provision of cricket practice pitches, with a view to effecting economy. In the past we have had to re-turf the whole of our practice pitches each season, an expensive and, at this period of the year when so much other work is on hand, a very troublesome undertaking. In order to prevent this extra labour and expense, we are laying down lengths of cocoanut matting on well-rolled ground to take the place of turf. Cricketers all speak highly of this material for bowling upon, but whether from a financial standpoint it is to be preferred to turfing remains to be seen.

PRESENTATION TO MR. D. CARSON.—On the 25th inst. the staff at Waterlow Park made a presentation of a marble clock, suitably engraved, and two bronze Marly statuettes, to Mr. D. Carson, on his promotion to a higher rank in the service of the London County Council. Regret was felt that Mr. Carson was leaving Waterlow, and good wishes were expressed for his success in the new position as superintendent of Southwark Park. In thanking the staff for the gift, Mr. Carson acknowledged the kindly feeling the members had shown him during the seven years he had been their superintendent.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR APRIL.

MONDAY, APRIL 1—Bank Holiday.

TUESDAY, APRIL 2—
Roy. Hort. Soc. Coms. meet.
Scottish Hort. Assoc. meet.
Nat. Amat. Gard. Assoc. meet.

THURSDAY, APRIL 4—
Roy. Hort. Soc. (Ireland) Spring Fl. Sh. (2 days).
Manchester & North of England Orchid Soc. meet.

FRIDAY, APRIL 5—
Truro Daffodil and Spring Fl. Sh.

SATURDAY, APRIL 6—
Soc. Franc. d'Hort. de Londres meet.
German Gard. Soc. meet.

TUESDAY, APRIL 9—
Devon Daffodil & Spring Fl. Sh. at Plymouth (2 days).
Brighton Spring Fl. Sh. (2 days).

WEDNESDAY, APRIL 10—
Liverpool Spring Fl. Sh. (2 days).

TUESDAY, APRIL 16—
Roy. Hort. Soc. Coms. meet.
Shropshire Hort. Soc. Spring Fl. Sh. at Shrewsbury.

THURSDAY, APRIL 18—
Linnean Soc. meet.
Manchester & North of England Orchid Soc. meet.
Huntingdon Daffodil Sh.

FRIDAY, APRIL 19—
Kent, Surrey & Sussex Daffodil and Spring Fl. Sh. at Tunbridge Wells.

SATURDAY, APRIL 20—
German Gard. Soc. meet.

TUESDAY, APRIL 23—
Midland Daffodil Soc. Exh., Birmingham Botanic Gardens (2 days).

WEDNESDAY, APRIL 24—
Roy. Bot. Soc. Exh.
Darlington Hort. Soc. Spring Fl. Sh.

TUESDAY, APRIL 30—
Roy. Hort. Soc. Coms. meet. and Nat. Auricula Soc. combined Sh. in R.H.S. Hall.
British Gard. Assoc. Ex. Council meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—45.8°.

ACTUAL TEMPERATURES:—
LONDON.—Tuesday, March 26 (6 P.M.): Max. 58°; Min. 46°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Wednesday, March 27 (10 A.M.): Bar. 30.4; Temp. 49°; Weather—Slight fog.

PROVINCES.—Tuesday, March 26 (6 P.M.): Max. 55°, N.E. Scotland; Min. 45°, Hull.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—
Border Plants and Bulbs, Lilies, Azaleas, Palms and Plants, at 11; 4,000 Roses and Fruit Trees at 1.30 and 4; at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Importation of *Odontoglossum crispum*, Imported *Cattleya Labiata autumnalis*; also established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Those responsible for the management of old trees in our parks, especially those in populous cities, and particularly when those trees are Elms, are placed in a serious dilemma. The Elms have in general attained maturity, have often become stag-headed and fungus-infected, and are, as is well known, liable to cast their branches suddenly and without warning, even when not diseased. Many deaths have occurred from this cause. What, then, is the best course to follow in such a case? To remove the Elms completely is to sacrifice the plans of the landscape gardener and to spoil the amenity of the park. To lop the trees, as is now being done, is to cause hideous disfigurement in the present and a thicket of brushwood in future, whilst it postpones,

rather than wholly averts, the dangers to which we have alluded. When a tree is removed there is always an outcry in the public Press, the writers in which do not seem to recognise that trees must decay and die like other creatures, but if a child be killed the outcry is justifiably still louder. To attempt to renew an avenue or a group by cutting out the old trees and planting new ones of the same species in the same situation is an unsatisfactory procedure. The best thing to be done is to form a new avenue elsewhere, and to wait, or be content with the notion that our successors will derive the advantage of our forethought, even as we have benefited by their proceedings.

It must be remembered that the lowermost limbs of the Elm are nearly of the same age as the stem, and consist chiefly of heartwood—a very brittle substance in this tree; and to shorten these, cutting back or removing many of the lateral shoots on them, so as to reduce the amount of leafage, is a prudent operation to adopt with aged trees, though, as we have said, it does not add to their beauty! We have rarely, if ever, known the limbs of other species of trees to fall with or without warning in calm weather in summer, except occasionally Oaks. Even other species of *Ulmus* than the common one, do not suffer in this manner, so far as we know. The topping of the Elms and other trees in Ravenscourt Park and Kensington Gardens is called for by the progressive decay producing "stagheadedness" of the highest branches. It is, we repeat, very questionable if the lopping can have any material effect in putting a stop to this malady, it being probably due to the roots having penetrated the beds of alluvial sand and gravel overlying the clay of the London basin, and being thus deprived of a sufficient supply of air. An alternative plan would be to fell the worst trees and those affected with fungus, and to plant others so as to complete the original contour of the group or avenue. As in the parks in question the original plan of straight-lined avenues has not been much interfered with by modern planters, clearances of old trees might, in spite of popular clamour, be carried out with good effect by planting vigorous young trees of some other species on the lines of the original plan, which in Kensington Gardens consists of radiating avenues converging on the round pond facing the Palace. But, as we have said, it is generally an unsatisfactory proceeding to attempt to "mend" an avenue. It is generally better to accept the situation, remove the old and dying trees, and make an avenue elsewhere. Felling is much more required than tree lopping and topping, so as to admit air and light into parts unduly choked with tree growth, and allow of freer development of those trees that are left.

A change of species of timber trees is also certainly desirable, just as in farming, for whereas a change of soil is an impossibility, the kind of crop grown can be easily changed with advantage. The Cornish Elm might be more largely planted; in the moister parts American and English Oaks might be employed more abundantly, these adding great beauty to woodland scenes in the autumn months; Maples, especially *Acer eriocarpum*, and Planes; Liquidambar; the green and the variegated-leaved Tulip trees; Mountain Ash, Robinia, *Sophora japonica*, *Alnus cordata*, the Ginkgo (*Salisburia*), Beech

and Hornbeam in variety if planted in hundreds—not singly—would in the course of time add much to the beauty and interest of the park. Limes and Thorns, however desirable in the country, are not to be recommended in towns.

The seventh report of the Woburn Experimental Fruit Farm, to be had from Eyre and Spottiswoode, is likely to be read with great interest by fruit-growers.

It will doubtless lead to considerable controversy and much difference of opinion. Of course circumstances alter cases, and much must depend on the point of view chosen by the disputant and upon the objects he has in view. The tree, left to itself, would no doubt resent the use of the pruning knife, and although the crop each year might probably be smaller in proportion and certainly the individual fruits smaller and less highly developed than in the case of the skilfully pruned tree, yet the life of the tree would be longer and it would be less liable to the attacks of canker and other fungi always ready to gain entrance through a wound. The object of the fruit-grower is somewhat different; it is not the health of the tree, he considers, but the abundance and especially the quality of the crop which are the first considerations with him.

At Woburn an attempt has been made to arrive at definite statistical conclusions as to the effect of pruning by measuring the leaves, and now by weighing trees of various kinds planted at the same time and in like conditions. The results are interesting, but it is obvious that the measurements and the weighings must be made of a vastly larger number of trees before errors can be eliminated or compensated and a fair average obtained. The results secured at Woburn (page 27) will hardly be accepted as being in accordance with general experience. "Where there is no pruning the crops are twice as great as when moderate pruning is adopted, and four times as great as when hard pruning is practised." Whilst fully believing that a great deal of unnecessary mutilation is practised, it is difficult to accept without considerable modification such a sweeping statement as that we have just quoted.

In Plate 1 two trees of Bramley's Seedling Apple are shown, one pruned, the other unpruned. This is rather unfortunate, as the variety selected is naturally a strong grower, and the hard pruned tree, though less in size, has much the thicker wood, and would probably be much the best tree in another ten years' time. The lesson would have been more valuable if the illustration had been taken from a weaker grower, such as Ribston Pippin or Margil, and there would be the danger of many unpruned trees becoming miserable specimens, such as shown on Plate 4, where Stirling Castle Apple is depicted.

However, the value of the report lies in the proof supplied of the importance of a judicious and moderate use of the knife. Few practical men will, however, agree with the statement on page 52: "That pruning not only does not increase the actual size of the tree, but it results in less new wood being formed." The experience of the majority is that pruning does increase the production of new wood, being the restoration of the balance between roots and top. In the case of a healthy, vigorous tree, properly manured, hard pruning is decidedly a mistake, and reduces the yield of fruit very materially. Facts and figures are given, as



GLADIOLUS "PEACE," A PURE WHITE VARIETY FROM AMERICA.

we have stated, showing the difference in favour of light pruning, and there is no doubt that in many gardens where severe pruning is carried out a study of the Woburn report would be useful. Cutting out branches which cross, or rub against each other, is pruning, which most people will consider a necessity. Any tree is the better for such attention, and the report advises the use of the knife for newly-planted trees and such trees as produce only fruit-buds. In brief, the report leads to the conclusion, on the one hand, that hard-pruning is wrong in the case of good, healthy trees, and, on the other, that no pruning at all is equally a mistake. The mean is obtained by a study of the requirements of each variety and the condition of the tree, and by acting accordingly.

OUR SUPPLEMENTARY ILLUSTRATION to the present issue depicts what is described as a pure white *Gladiolus* known under the name of "Peace," and it may be specially interesting to gardeners now that the season for planting *Gladiolus* corms has again arrived. It was raised by Mr. GROFF, Simcoe, Canada, and it is being cultivated for distribution by Mr. COWEE, of U.S.A. The variety is considered to possess exceptional merit, and has received certificates from the Society of American Florists and the Canadian Horticultural Association. Corms will be distributed this season, but we have no reason to think the variety is at present in cultivation in Britain. Messrs. KELWAY & SONS catalogue a variety under the same name, but that is described as of flesh-pink colour with violet spot and white tips, and, as Messrs. KELWAY have informed us, it was raised by themselves at Langport, Somersetshire. It is unfortunate that two new varieties should bear the same name. For the photograph we are indebted to Mr. A. DIMMOCK.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committee will be on April 2, in the afternoon at 3 o'clock. A lecture on "Orchid Hybrids," illustrated with lantern slides, will be delivered by Mr. H. J. CHAPMAN.

THE WORKMEN'S COMPENSATION ACT.—To what extent an employer of gardeners, garden-labourers, and casual assistants is liable in the case of injury or disablement to the employee under the Act which comes into operation on July 1 next is not altogether clear. Some idea may, however, be gained from the *People's Guide to the Workmen's Compensation Act*, which may be had for a penny from Messrs. BEMROSE & SON, 4, Snow Hill, E.C.

DEPARTMENTAL COMMITTEE ON AGRICULTURE.—The President of the Board of Agriculture and Fisheries has appointed a departmental committee to enquire as to the provision which has now been made for affording scientific and technical instruction in agriculture in England and Wales and to report whether, in view of the practical results which have already been obtained, the existing facilities for the purpose are satisfactory and sufficient, and, if not, in what manner they may with advantage be modified or extended. The members of the committee are as follow: The Right Hon. LORD REAY, G.C.S.I., G.C.I.E. (Chairman); LORD BARNARD; LORD MORETON; Mr. FRANCIS DYKE ACLAND, M.P.; Mr. DAVID DAVIES, M.P.; Mr. NORMAN LAMONT, M.P.; Mr. THOMAS LATHAM; Mr. JOHN CHARLES MEDD; Professor THOMAS HUDSON MIDDLETON, M.A., M.Sc., one of the assistant secretaries of the Board of Agriculture and Fisheries; Professor WILLIAM SOMERVILLE, D.Sc.; and Mr. HENRY STAVELEY-HILL, M.P. Mr. ARTHUR ERNEST BROOKE-HUNT (Board of Agriculture and

Fisheries) will act as secretary, and Mr. HENRY LEON FRENCH (Board of Agriculture and Fisheries), as assistant secretary to the committee.

THE LATE SIR THOMAS HANBURY.—The remains of this eminent philanthropist were, we learn, cremated at San Remo. The Syndic of Ventimiglia gave expression to the sorrow of the neighbours and to the gratitude and veneration they felt for their benefactor. Thousands lined the streets of Ventimiglia, and at Bordighera and San Remo the inhabitants also manifested their sympathy. The Italian Minister for Foreign Affairs, the Universities of Rome and Genoa, besides many mayors and heads of public institutions, sent telegrams of condolence. The memorial service at Mentone, to which we have already alluded, was held in the French Protestant church which Sir THOMAS was in the habit of attending. The Pastor and the Mayor expressed the sympathy of the inhabitants of Mentone with the family.

CROCUSES AT HAMPTON COURT.—The town-dweller or suburban resident accustomed to grow a few bulbs in small gardens or back yards, or in pots or pans, has but a poor estimate of the wondrous beauty bulbs can produce in the early spring when planted somewhat naturally on a large scale. Even at Hampton Court, where bulbs play a prominent part in the spring bedding, the display obtained seems stiff and formal, compared with what is seen when more natural conditions are copied. Thus, just recently the Crocuses planted in the grass beneath the tall Lime trees, and in area running into acres, have been beautiful beyond description. Literally the wealth of beauty furnished, and yet all provided just as though nature alone had done it, might be regarded as giving a glimpse of fairyland. To copy nature without formality is the chief art of the gardener, but all the same it needs the eye of a true artist thus to reproduce natural beauty.

BRITISH GARDENERS' ASSOCIATION.—A meeting of the council of this association was held at the R.H.S. Hall, Westminster, on March 19, Mr. W. H. DIVERS presiding. Twenty-two new members and one apprentice were elected, bringing the total number elected up to 1,099. On the report of the sub-committee it was decided to defer for the present the question of registering the association. Attention was called to the action of the Cardiff City Council in recognising the certificate of the association as a mark of distinction amongst gardeners, and it was hoped that other public bodies will follow the lead given by Cardiff. A publication committee was appointed to commence the publication of a quarterly journal, the committee consisting of Messrs. C. H. CURTIS, C. FOSTER, E. F. HAWES (treasurer), R. HOOPER PEARSON (vice-chairman), and J. WEATHERS (hon. secretary). At the annual meeting of the association, to be held on May 29, papers will be read as follows: "Testimonials," by Mr. A. C. BARTLETT; "Apprentices," by Mr. DALLIMORE, of Kew; and "Examinations for Gardeners," by Mr. C. FOSTER, Reading.

DEATH OF PROFESSOR WARINGTON.—It is with sincere regret that we had briefly to record in our last issue the death of Professor ROBERT WARINGTON, who expired on Wednesday, March 20, at his residence, High Bank, Harpenden, at the age of 69 years. We can now add some particulars of his career. The deceased had always been an active man, and the beginning of his health failure was about twelve months ago, when he underwent an operation for an internal disorder, an operation which greatly benefited him for a time, but eventually a recurrence of the malady gradually led to his death. Mr. WARINGTON was a son of the chemist to the Society of Apothecaries, and was well known among noted agricultural

chemists. He was a Fellow of the Royal Society and of the Chemical Society. He worked in the Rothamsted Laboratory for some time in 1859, afterwards taking a position at Cirencester Agricultural College. In 1867 he became chemist to Sir John Lawes' manure and tartaric and citric acid factories, returning to the Rothamsted Laboratory in 1876 and remaining there until 1890. His special work at Rothamsted comprised the systematic analysis of rain, drainage and well-waters; the determination of nitrates, chlorides, and carbon in soils; a prolonged investigation of the process of nitrification; and a study of the chemical action of various micro-organisms. For three years he held the post of Sibthorpean Professor of Rural Economy at Oxford. Professor WARINGTON is probably best known for his popular text-book, *The Chemistry of the Farm*, No. 1 of the series of *Morton's Handbooks of the Farm*, which has passed through 15 editions. He was an occasional contributor to this journal; also to most of the leading agricultural and chemical journals of the country. In 1891 he visited America for the purpose of delivering a course of lectures on the investigations at Rothamsted, under the provisions of the Lawes Agricultural Trust. Mr. WARINGTON was twice married. His second wife, a daughter of the late Dr. F. R. SPACKMAN, of Harpenden, remains to mourn his loss; there are five children. The funeral took place at the Parish Church, Harpenden, on the 23rd inst.

OOTHECA WOLLEYANA.—We have referred, on more than one previous occasion, to this "illustrated catalogue of the collection of birds' eggs formed by the late JOHN WOLLEY," so need merely mention the appearance of a new volume, edited by Professor ALFRED NEWTON. This is the fourth and final part (*Alcae-Anseres*) and contains a supplement and appendix as well as Prof. NEWTON's retrospect and farewell to his readers and to his labour of love. This handsome and most important book is published by R. H. PORTER, 7, Prince's Street, Cavendish Square, and is indispensable to students of birds and their eggs.

ANGLO-AMERICAN GARDENERS.—To add to the list recently given we may cite these names:—

J. M. HUNTER, the President of the National Association of Gardeners, who began his gardening career under ROBERT DRAPER, of Seaham. Mr. HUNTER made his mark in landscape work here, and has emphasised it in the United States.

MR. JOHN SHORE is an Irishman who passed through the nurseries of DOWNIE, LAIRD & LANG, and of METHVENS, of Edinburgh. After various experiences in England he went to America, and is now Vice-President of the National Association of Gardeners.

JOHN WHALLEY, the Treasurer of the same society, was born in Manchester, but went to America when he was 18 years old.

JAMES BELL was born at Ecclefechan and went to America in 1894, and has filled many important positions in that country.

CHARLES DUMPER was an apprentice at Glen Eyre, Southampton, and held many important posts in this country before he migrated to the States.

THOMAS H. WHITE was born in Gloucestershire, where he worked with his father in several gardens. The whole family crossed the Atlantic, and the son is now gardener at the Maryland Agricultural Experiment Station.

MR. JAMES M. LOGAN was trained at Castle Semple, Renfrewshire, migrated to Canada, and thence passed to the States.

DAVID DOUGLAS (auspicious name!) was born at Ayr in 1831, and in his 21st year went to Connecticut, and latterly was Superintendent of the Gardens at Vanderbilt University.

M. SORENTON is a Dane by birth, but passed some time in the nurseries of Messrs. Low & Co., of Clapton, and of Messrs. ROCHFORD, of Cheshunt.

Portraits of these gentlemen were given in our nar'esake, the *Gardeners' Chronicle of America*.

FLOWERS IN SEASON.—From Messrs. CLIBRANS, Altrincham, Cheshire, we have received flowers of a good strain of *Cinerarias* of the ordinary florists' type.

LORD GROSVENOR AND MANX CODLING APPLES.—We learn from various sources that these two valuable culinary Apples are much sought after in Germany, especially in the Rhine provinces, the former more especially, on account of its extraordinarily abundant bearing. As it suffers in some parts from the attacks of *Fusicladium dendriticum*, it is considered good practice to spray the trees once or twice annually with the Bordeaux mixture. Notwithstanding the heavy and early cropping of the bushes and standard trees of Lord Grosvenor, these do not become stunted or crippled in their growth as is the case with others of the Codlin class. In the opinion of cultivators in that country this variety is to be preferred for early bearing and fruit fulness to Charlamowsky, Spice Apple, and others. Nurserymen on this side of the water should not lose sight of the increased demand in Germany for Lord Grosvenor and Manx Codling.

POTATOS.—The Hon. H. A. STANHOPE has compiled an interesting pamphlet on the history and development of the Potato from the date of its introduction to Europe to the present time. It is somewhat singular that the original water-colour drawing of the plant by CLUSIUS, still preserved at Antwerp, and reproduced in our columns, should not have been mentioned. But 26 pages, which is all that the "One and All Series" of pamphlets can afford to allot to the subject, are obviously insufficient to allow of "excursions" into history, or even diseases. The main object, that of giving an account of the cultivation of the tuber, is well fulfilled. The author has his gird at the "compound titles too common with scientific men, which, being partly Greek and partly Latin, are not fully intelligible in either language." It may be pointed out that it was quite unnecessary in a popular treatise of this kind to use the technical name of the Potato fungus at all, but that if it were used, the author should have taken care to spell the name correctly. For ordinary purposes everyone understands what the Potato disease is, in spite of the fact that the maladies incident to the tuber are many. If we say the Potato disease or the "late blight," we need not offend the susceptibilities of those who object to the words of Greek or Latin derivation.

FLOWERS AND THE PHYLLOXERA REGULATIONS.—We have repeatedly pointed out in this journal the uselessness of most of the regulations of the various European States against the importation of this pest of the vine into their territories, the hindrances to the nursery trade and the personal annoyance of which they are the cause. The latest case, of which a brief statement appears in the number of the *Bindelkunst* for March 1 now before us, exhibits the Austrian regulations against the introduction of Phylloxera in a most ridiculous light, and bears repeating in the English language. The writer of the note in the journal named states that he was desirous of affording a pleasant surprise to his bride on her birthday by taking a basket of flowers. The lady resided in Bohemia, and he had to journey right across Germany, carrying his basket of flowers, as he would an uncooked egg, and arrived at Bodenbach, the end of his journey. On being asked by the Austrian official of what the contents of the basket consisted, he said living (fresh) flowers. "They cannot pass the frontier because of the Phylloxera regulations, or only with the permission of the Austrian Foreign Office," said the official. I might send a telegram to Vienna, and then it might be allowed. I declined to adopt this way out of the difficulty, and the drama began

to assume a tragi-comic aspect. I declined to throw the flowers away, and I requested the official to accept them as a present for his sweetheart, and naturally this offer was gruffly refused. "Well, then," said the traveller, "throw the basket, flowers, and all into the Elbe." "Must not occur on Austrian soil, and they must therefore be transported to Saxony." In short, it was necessary to place the tender spring blossoms under lock and bolt of the Austrian Custom House till the next day to be fetched by a carrier, and find an early grave on German soil.

COMMONS AND FOOTPATHS PRESERVATION SOCIETY.—Lord EVERSLEY presided recently over the monthly meeting of the executive committee of this society, held at 25, Victoria Street, S.W. It was stated that eighteen railway, water, and improvement Bills introduced into Parliament during the current session affected 787 acres of common land or open spaces, and the solicitor (Mr. P. Birkett) reported that several promoters had already agreed to insert clauses for the protection of the public interests in consequence of the society's intervention. The London and North-Western Railway Bill had been blocked by Sir John Brunner on behalf of the society owing to the serious nature of its proposals with regard to Gosford Green and Stoke Heath, Coventry. A satisfactory settlement had now been arrived at by which the commons would be preserved. The Metropolitan Water Board had also agreed to the insertion of a clause in their Bill to provide that the powers sought by the Board over Streatham and Mitcham commons, and Wyke, Plough and Mitcham greens, should be limited to the acquisition of easements only, and that all conduits should be laid underground when crossing the commons. It was further reported that the Board of Agriculture had raised technical difficulties to the application of the Witley Parish Council to enclose a portion of Milford Common, Surrey, for the purpose of a burial ground, and that in consequence of these objections it was understood that the proposal would be abandoned. It was resolved to reintroduce into the House of Commons the society's Rights of Way Bill, which passed its second reading last session, and also to introduce a Bill to facilitate the regulation of rural commons and the restriction of the powers of highway authorities to disfigure commons in searching for road metal. The solicitor stated that the society's scheme for the preservation of Towyn Trewan Common, Anglesey, had now been approved by local parish meetings. The common comprised 1,300 acres of pasture land and sandhills bordering the sea shore at Rhosneigr, and it was proposed to acquire 800 acres of the land and regulate the whole area as an open space. The total amount needed to enable this to be done was only £1,300, and the society resolved to issue a public appeal for that sum, in view of the importance of permanently preserving the largest common in Anglesey.

HOW I WORK MY SMALL FARM.—By F. E. GREEN. This should prove a handy book to the many who wish to manage a small farm. It is an account of the writer's actual experience in farming on sixteen acres, so successful on the whole that he is justified in encouraging others to follow his example. But he warns the oversanguine that the work is neither poetical nor simple; "one has to be a bit of a carpenter, a bit of a carman, a bit of an engineer, a bit of a bricklayer, a bit of a biologist, botanist, and veterinary surgeon, as well as a bit of a weather prophet. You must know something of woodcraft; how to handle a bill-hook, and fagging-hook; how to swing a scythe, and split rods for thatching. Above these useful technical accom-

plishments you must learn the necessary but hideous art of driving a bargain." We commend Mr. GREEN's chapters on fruit and vegetable growing for market to the attention of those who contemplate undertaking such enterprises. Specially do we desire to call the attention of our statesmen and economists to the chapters relating to "Small Holdings and the State," and co-operative small holdings: "The bane of country-life is its extreme individualism. The lack of collective effort, and the absence of guilds has left these country craftsmen in a state of depressing poverty. The cottages they live in are very often hovels in which no country gentleman would think of housing his horses or his dogs, and yet they are considered good enough in which to breed our Imperial race—the decadent descendants of what was once a race of yeomen." The publisher is A. C. FIFIELD, 44, Fleet Street.

RETARDING PLANTS.—There is no doubt also that a cool atmosphere is a great aid to prolonging the life of cut blooms, and in this way refrigeration comes to the aid of the florist. I recently designed some cooling chambers for a large West-end florist, and I am given to understand that in the summer great benefit is derived from keeping the cut blooms in a temperature of 45° during the night, and until they are wanted in the shop for sale. It is, however, to the horticulturist that refrigeration has come as the greatest surprise and assistance. In the past, plant life has been retarded or advanced by the absence or presence of light and heat, and, by means of artificial heat, both fruit and flowers have been produced out of due season. This out-of-season production has, if possible, been brought to a greater state of perfection by the antithesis of this arrangement, or by the retardation of the development of life by placing the roots in a cold temperature. The principle is fairly obvious: all living things require a period of rest. In the vegetable kingdom, with a few exceptions, this rest is taken in the winter, while the work is done in the summer. In a cold store it is always winter, and so long as the life of the plant is not retarded to the point of extinction, its generation of new life can be kept back almost indefinitely. With this knowledge, and the proper facilities for making use of it, at his disposal, the gardener of the day becomes practically master of the situation, and can make plants and flowers bloom or fruit just as and when he pleases. In fact, it is quite possible to-day to give an order to a horticulturist for a thousand Lily of the Valley blooms to be delivered at your residence on the 20th of June, July, or August next, or in fact any other date, and to pass the interval of time in perfect security that the order will be duly fulfilled. There appears to be no reason why practically any root plant should not be capable of having its growth retarded by cold storage. Its use is at present confined to retarding varieties of bulbs, but any perennial should be, within limits, susceptible to the same treatment. The method employed with Lilies of the Valley is as follows:—The roots are taken straight out of the cold store, and after they have been thawed in the ordinary atmosphere, are planted out under glass in beds or pots in the ordinary way. Lily of the Valley crowns which have not been artificially retarded take six weeks in which to flower. Retarded roots are much more vigorous. The influence of warmth and dampness rapidly stimulates the dormant vitality. In a few days they begin to shoot, in a week the plants are growing strongly, and in less than a month they are in full bloom. It is a curious thing that the prolonged rest appears to have the effect of making the growth exceedingly rapid, once it is started. *Hal Williams, in Journal of the Society of Arts*

CYCLAMEN LATIFOLIUM.

HAS *Cyclamen latifolium* been improved by the florist? To this question there is undoubtedly more than one answer. A keen florist who has great admiration for size would say no doubt that the improvement has been enormous, but from the point of view of grace, elegance and prettiness, I think that the original is much the best. Mr. Peter Barr very kindly sent me some bulbs from the wild form of this *Cyclamen* which are now in flower in the Cambridge Botanic Garden and they are most charming, flowers are numerous and graceful, and the leaves are prettily marbled. In comparison, the improved *Cyclamen* may be described as heavy, few-flowered, ungainly and lumpy, while the leaves are awkwardly fleshy and without the same perfection of marbled surface. *R. Irwin Lynch, March 14, 1907.*



FIG. 92.—CYCLAMEN LATIFOLIUM AS GROWN AT CAMBRIDGE FROM "WILD" CORMS FURNISHED BY MR. PETER BARR.

THE PROPAGATOR.

MANY species of plants produce "runners" on the surface of the soil which are capable of taking root, and in that manner increase the circumference of the mother plant. This mode of increase or reproduction is in some instances taken advantage of by the gardener, as, for example, in Brambles of all kinds, *Syringa*, *Bambusa*, &c., which are taken off at the right time from the parent plant and planted in suitable soil and favourable situation. For most of such runner-producers the spring affords the most suitable season.

Other plants, on the contrary, make underground shoots and suckers, which almost have the form of roots. These, if cut into pieces, and laid in pots, pans, or the soil out of doors, and covered with sandy soil, soon emit shoots and roots, and when the latter are well developed, the pieces may be taken up carefully, and either potted or planted out. Such are *Curculigo*, *Anemones* of the Alpine section, which are also readily increased by division in the present month, and *A. japonica* and its varieties. Plants of *Colocasia antiquorum*, *nymphaeifolia*, *esculenta*, and others; and *Alocasia Lowii*, *tigrina*, *Veitchii*, *macrorrhiza*, *Dracæna*, &c., develop underground shoots, whose points sometimes take the form of tubers. It is merely necessary for propagating purposes to remove

these from the mother plant with a knife, and insert them in a sand bed or small pots, like any other sort of bulb or tuber. Development is very quick, and a handsome plant is soon obtained. *Dichorisandra*, *Calathea*, *Maranta*, *Phrynium variegatum*, and *Cannas* are readily increased by means of underground tuberous rhizomes, which, removed from the mother plants, laid in suitable soil, and afforded sufficient water and warmth, reproduce the plants with certainty—some of the rhizomes in 8-10 months, and a few in from 15-18 months.

DAHLIA, CLEMATIS, AND TREE PÆONIES.

March and April are the best months in which to graft the shoots of the desired varieties on to the tubers of others. The newly-sprouted growths are removed from the tubers of some poor varieties, and the shoots of the superior varieties, each furnished with a good basal bud are inserted as

roots of the same dimensions as the graft are available, whip grafting may be adopted. Great care must be taken to secure healthy roots for the stocks, not to wound or otherwise injure them, and to work quickly, so as not to exhaust the roots by exposure to the air.

At this season out-of-doors subjects may be similarly increased, with the proviso that leafless shoots are taken for the scions. The roots at the lower end of the stock have only one purpose, viz., to feed the scion until it has made its own roots.

BIGNONIACEÆ.

The climbing species may be raised from cuttings in almost every instance, but those with erect stems, firm wood, and leathery leaves are difficult, and require more care. For such species as *B. stans*, *B. fulva*, almost evergreen, the present month is the best for striking cuttings; but of such as lose their leaves in the winter season, the cuttings should be taken from well-developed spring shoots having three to five pairs of buds, the lowest pair being of the previous year. A suitable soil consists of leaf-mould two parts, good loam one part, sand one part; the cutting pots should be afforded good drainage, and above it should be placed a layer of the soil $1\frac{1}{2}$ inches thick, and above that some clean silver sand.

The cuttings should receive a moderate quantity of water, and be covered with a bell glass. The climbing species require for a satisfactory rooting of the cuttings a bottom heat of 70° - 75° Fahr., and those with leathery leaves of 80° - 70° .

DAPHNES, &c.

In this month *Daphne indica* and its varieties may be grafted on established stocks of *D. laureola*, placing them in a warm case or frame.

Hydrangeas may be increased for flowering next year by taking young flowerless shoots of the present year, and inserting them singly or a few together in small pots filled with sandy loam and leaf-mould, placing the pots in a bottom-heat bed of 75° - 80° . Rooting soon takes, when the plants should be gradually inured to greenhouse conditions. *F. M.*

THE MOHWA TREE
(*BASSIA LATIFOLIA*).

THIS tree, which is fortunately so common throughout large areas of the Bhil country in Western India, is a perfect mine of wealth. The flowers provide a very large proportion of the Bhil's food supply. They are eaten fresh, dried, and also cooked with parched grain. In the spring, when the buds appear, whole families temporarily migrate to the jungles for the "Mohwa harvest." The ground round the tree is carefully cleared, and as the flowers fall, they are collected and stored. When dried, they are sold in the bazaar for the liquor trade, and it is from these that practically the whole of the native liquor consumed in Central and Western India is distilled. In times of scarcity, the monetary value of the Mohwa flower rises with the intensity of the distress, and it often becomes of vital importance.

The Mohwa seed contains a valuable oil, which is used locally for cooking, for burning, and medicinally for application in cases of skin disease. A large quantity is exported annually to France, and doubtless contributes considerably to the world's supply of olive oil; it is ostensibly intended for the manufacture of soap. Further, a white milky juice is obtained from cracks in the bark, and the bark itself is often utilised for dyeing purposes, while the flowers, in the form of a decoction, provide a medicine largely used and much appreciated as a stimulant, an astringent, and even as a cough mixture.

The Mohwa tree is regarded as sacred by the Bhils, and it is almost the only tree of the forest that they will not either cut or destroy. It is jealously guarded as the personal property of the holder of the land in its neighbourhood, and it is only in the depths of the forests that the first-comer has the right to sit down under the tree and collect the crop. *Captain Barnes, in Journal of Society of Arts, February 6.*

a wedge-shaped graft in the top or neck of the tubers. It is especially necessary to have this base bud, otherwise there is the danger of no root-true variety being obtained.

Clematis is similarly grafted on pieces of the roots of *C. vitalba*, or *C. erecta*, the point of union being clayed over or painted with grafting-wax in a semi-liquid state. The grafted roots are potted in suitable sized pots, and these are placed in a mild hot-bed and kept close till growth shows itself, when air should be admitted by degrees.

Tree *Pæonies* can be struck from cuttings, but it is much less trouble to take strong roots of herbaceous varieties, and graft these in the same manner as *Clematis*. When the union is complete, the grafted plants must be accustomed gradually to full ventilation. Other plants which do not root well as cuttings are *Aralia trifoliata*, *A. crassifolia*, *A. elegantissima*, *A. filicifolia*, *A. Veitchii*, *Coffea arabica*, &c., may be readily increased by grafting a soft shoot on to a quite young vigorous point of a root of the same genus, covering the joined parts with grafting-wax then setting it in friable soil in a pot of a suitable size, and placing it in a close case and for the first few days under a bell glass. After the lapse of a month, the graft will have taken root. Usually the grafting is the wedge or crown kind, but if

SWEET PEAS OF RECENT INTRODUCTION.

THE Sweet Pea possesses exquisite colour, beauty of form, perfect hardness of constitution, and delicious fragrance. It is truly a flower of light and sweetness, and should be found in every garden that is worthy of the name. Shortly before his death, Mr. Henry Eckford gave to the world several varieties of the highest distinction, which should be sufficient of themselves to immortalise his name. Supreme among these is Dorothy Eckford, undoubtedly the largest and loveliest pure white Sweet Pea in cultivation, which, though not hooded like its immediate predecessor, Sadie Burpee, surpasses it in purity and dimensions.

last year, did not seem to me to be quite so luminous in colour as the Scarlet Gem. Queen Alexandra is, however, unquestionably very effective—I should call it the brightest of crimson-scarlet varieties—and it has this somewhat important recommendation, that it does not burn in the sun. My own beautiful Eckfordian namesake, parma-violet in colour, with purple shading, has proved popular beyond my utmost anticipations, and Mr. John S. Eckford tells me in a recent letter that there is hardly a foreign country to which he has not sent it, including China and Japan.

Of the many exquisite varieties derived from Countess Spencer, which has proved itself a veritable mother of sports, three of the finest

former being white, marbled with blue (natives of California), Horace Wright, whose distinctive colour is deepest violet-blue; Mrs. Alfred Watkins, a great improvement on Princess Beatrice; Earl Cromer, E. J. Castle (brightest rose), Frank Dolby, which has affinities in point of colour with Lady Grizel Hamilton; Agnes Eckford, of delicate pink complexion and faultless formation, and its beautiful contemporary, the Queen of Spain. *David R. Williamson.*

A LARGE CAMELLIA TREE OUT OF DOORS.

THE plant illustrated at fig. 93 measures 66 feet in circumference, 11 feet 6 inches in height.



FIG. 93.—LARGE CAMELLIA BUSH IN THE OPEN AIR AT LEONARDSLEE, SUSSEX.

Henry Eckford, while somewhat disappointing to exacting cultivators, is perhaps the nearest approach to a pure orange colour that has yet been introduced. To give this special variety full scope for the display of its possibilities of growth, it should be thinly sown—an injunction of the raiser too frequently ignored.

The Scarlet Gem, when introduced by Mr. Eckford, made a veritable sensation, and though it is not, when compared with some others, a very vigorous grower, being somewhat too susceptible to atmospheric influences, ought to be grown in a half-shady situation. It is, in my opinion, a nearer approximation to a true scarlet variety than Queen Alexandra, which, in my own garden, where I had it in bloom for the first time

examples are Helen Lewis, Gladys Unwin, and Nora Unwin, of which the last-named may be characterised as a pure white Countess, and is one of the loveliest of recent introductions. Its great charm lies in its having the standard and wings beautifully "crenulated," or "waved." I sometimes think that if it should prove prolific and a vigorous grower, it may eventually supersede even Dorothy Eckford.

An improved Queen Victoria has been found in Mrs. Collier, an eminently graceful flower of great substance and durability, which some cultivators have described as the finest Sweet Pea of pale primrose colour that has hitherto appeared. Other recent and interesting introductions are Helen Pierce and Shasta, the

and in a season is calculated to produce 5,000 to 6,000 double pink flowers. Last year (1906) open flowers were continuous from January 5 till May 15. It has just been dressed with several loads of cow manure and about 20lb. of bone meal, and the foliage is now beautiful. Plenty of nourishment and water are necessary at this stage. In the summer the hose is let run on its roots for several hours at a time. A good top dressing of soot several times a year is also helpful in maintaining the foliage a beautiful dark green colour. This is the handsomest of many Camellias that abound in these gardens. As an evergreen it is well worth its place. *W. A. Cook (gardener to Sir Edmund G. Loder, Bart.), Leonardslee Gardens, Horsham.*

TREES AND SHRUBS.

THE FERTILISATION OF ARAUCARIA IMBRICATA.

In the chapter on *Araucaria imbricata* in Mr. Elwes' *Trees of Great Britain* the paragraph dealing with cones states that "the cones take two years to ripen, fertilisation occurring in the second year, in June or July, when the scales open and expose the ovule to the pollen blown from neighbouring trees." I know that some transatlantic botanists are (or were) of the opinion that "pollination" takes place in the first year, but that the pollen remains in the cone-flower until the next spring, when it passes down the micropyle, and then "fertilises" the ovule. But I have not previously met with the theory that the cone-flowers are directly fertilised with outside pollen in their second year. I am not a botanist, but, being in charge of one of the finest collections of Conifers in our islands, and one which contains an unusually large number of adult *Araucaria imbricata*, I have had exceptional opportunities of observing the behaviour of these trees, and I am of the opinion that Dr. Henry's theory is incorrect. The formation of cone-flowers one year to be fertilised the next seems purposeless, and Nature rarely does things in that manner. Dr. Henry, in the work mentioned, says, "the male flowers frequently remain intact on the tree for several years: in Europe they generally appear early in spring." I have rarely known the male flowers remain on the trees longer than a year. Already many of those which shed their pollen last July have fallen, and in the southern counties of England the male flower-buds first appear late in autumn, and by the end of November they are readily seen. The cone-flowers usually make their first appearance towards the end of April: they are then globular tufts of narrow leaves paler in colour than the true leaves. These buds grow rapidly, and by the time—at about the end of June, according to the season—the pollen is liberated from the catkins are about 7½ inches around. They increase in size until, roughly, the middle of November, when a cone tightly measured is 11 to 12 inches around. From this period the cones make little or no increase until about the beginning of April, when growth is again resumed. By the time next year's pollen is ripe (some years not till the second week in July) this year's cones will be nearly fully grown, for the ripe seeds frequently fall in August, leaving the woody axis on the branch. Last summer I artificially fertilised, or I had better say pollinated, a number of cone-flowers, and I send a section of one to show the present development. A. C. Bartlett, Pencarrow Gardens, Cornwall. [The section was forwarded to Prof. F. Oliver.—ED.]

TORREYA CALIFORNICA.

In connection with the notes on this tree on page 99, it may be of interest to record a fine specimen growing at Coldrenick, the Cornish seat of General Jago Trelawny, near Liskeard, which is over 35 feet high and well furnished with healthy foliage. It is broadly-pyramidal in habit, much like a typical *Abies bracteata*; in fact, as I first saw it at a little distance, its habit, and nearly horizontal branches, deceived me into thinking it was an example of the "Santa Lucia Fir," but a closer examination established its identity. Examples of the Californian nutmegs seem to be very rare in this country, and they do not seem to be in favour with planters, but where room can be afforded, these trees should be represented, if only as curiosities. They are reputed to be tender, and also slow-growing in a young state. I fancy the character for tenderness is undeserved, and owes its origin to trees having been over-nursed. The Coldrenick specimen, although planted nearly

half-a-century, gives no promise of ever reaching the dimensions quoted in the *Gardeners' Chronicle* (100 feet), but is quite large enough to give pleasure as an ornamental tree, and is perfectly healthy. It is growing on very high ground, in well-drained loam of moderate quality, and only lightly screened from wind. As it seemed to me that these conditions most probably contributed to its success, I soon afterwards obtained Mrs. Ford's ready approval to plant young trees of this species, and also *Torreya nucifera* in a similar position at Pencarrow. It is, of course, too soon to speak of these trees, but even if they do prove to be "slow growing in a young state," their ultimate success is worth any initial disappointment. A. C. Bartlett.

PHOTINIA SERRULATA.

This tree, I believe, was introduced from China and Japan in 1804, and is not supposed to be of a very hardy nature, it having been cut to the ground by the frost in 1860, since which date very little harm has happened in these gardens to the fine plant, which measures 22 feet in height and 23 feet in diameter. This is supposed to be the finest in the country. It has Laurel-like leaves, about 5 inches long, and these when in a young state are of a beautiful bronzy chocolate colour. The flowers are small and produced similarly to those of the *Laurus tinus*, a spray of which was exhibited at the Royal Horticultural Society's meeting of February 12. This fine specimen is not growing against a wall.

LIRIODENDRON TULIPIFERA.

There is a fine Tulip tree here, whose height is 93 feet, girth 4 feet from the ground 11 feet 10 inches, and at the base 17 feet. This tree has a clean stem of nearly 30 feet before there are any branches. W. A. Cook, Leonardslee Gardens, Horsham.

NOTICES OF BOOKS.

DR. SORAUER'S HANDBUCH DER PFLANZEN-KRANKHEITEN. Parts 1 to 10—Diseases of Plants.

Since our first general notice of this publication, we have received ten parts of the work. As we stated before, Prof. Sorauer's book is published in parts, and it is expected to be completed in 16 to 18 parts. The whole matter is arranged in three volumes. The first one deals with diseases or injuries to plants which are caused by unsuitable culture, unfavourable weather, smoke, gases, or any physical or mechanical cause. The second volume, prepared by Prof. Lindau, of Berlin University, deals with the diseases of plants caused by fungi, and the last volume contains the entomological portion.

The first volume is much in advance of the others in publication, and enables the reader to form a good opinion as to the practical value of the work, which is based mainly on scientific research and practical experience. Altogether, Dr. Sorauer deserves the credit of bringing before the public a work exhaustive in its treatment of this subject, and written in plain, everyday language, thus being equally valuable to the practical man and to the student. Prof. Sorauer believes in what he terms a "predisposition" of plants to parasitic diseases. The term is, however, not well chosen, and conveys little meaning to the English reader; we would prefer to speak of the conditions which render a plant more or less susceptible to disease. It often happens that though one may notice that a particular crop shows distinct signs of disease, on examination none of the common agents—fungi or insects—can be recognised as causing the malady. The first volume deals especially with these injuries. The difficulty experienced in cultivating plants out of their proper regions is well known, and the "injuries," or, rather, de-

fective growth, find their explanation in practical experiments. The same may be said of plants growing on steep inclines, or too deeply planted, so that atmospheric conditions and an ill-regulated water-supply produce deviations from health. Similar injuries result from the cultivation inland of plants which thrive only on the coast and *vice versa*.

The second chapter deals with the physical conditions of the soil, and it is interesting to find that to this source is mainly attributed the dwarf growth of the well-known Japanese miniature plants. It is the duty of science to destroy sentimental superstitions, and to throw light on misleading mysteries, even if it is only the case of the Japanese dwarf-tree mystery. Some plants of this kind were subjected to examination, and it was found that only 30 "yearly" rings could be counted. Prof. Sorauer says that by means of clever cultivation, or, rather, by systematic starvation, trees may be artificially dwarfed in less than the time generally stated. It is well to have this interesting information, though it may seem like giving away a "trade secret"!

In the same chapter we find accounts of impaired health consequent on unsuitable condition of the soil (e.g., light, sandy soils), or due to the presence of underground water, as well as of the diseased condition of the trees which line the streets of cities. In horticulture we often meet with cases of ill-health in plants grown in pots, due to "unsuitable conditions of the soil." What a badly-drained field is to a farmer a badly-drained flower-pot is to the gardener. The drainage crocks cease to be of use, and the soil becomes sour when careless watering is practised. The top-soil becomes covered with a whitish-yellow crust, and the pots themselves appear as if mouldy. These incrustations consist mainly of carbonate of lime. When these signs appear the gardener may be assured that stagnation has set in. We find in this chapter, which is a very lengthy one, careful explanations of many maladies which are well-known both to farmers and to gardeners, but the cause of which has been hitherto little studied; and what is more of importance still, the causes to which these maladies are said to be due have been established by exhaustive experiments. We may here just briefly refer to a few cases which are well known, though very little attention has been paid to the remedial measures. Thus the author explains the injuries to Cherry and Apple trees growing in unsuitable soil. The injury is often noticeable, and manifests itself in small fissure-like, scabby patches on the roots and shoots of the trees. Similar injuries on Sweet Chestnuts and Copper Beeches and on Sugar Beet and Mangels are explained. All these injuries may be remedied by efficient drainage and top-soil ploughing, and by the influence of frost on the fields after ploughing.

The next chapter is an important one for the agricultural and horticultural chemist. In it are investigated the injuries due on the one hand to the absence or to the superabundance of certain chemical constituents, and on the other hand either to drought or to the superabundance of moisture. Numerous cases of the well-known malformations, fasciations, proliferous growth and other teratological phenomena are explained in this chapter.

The second division of the first volume begins in the last part issued, and deals mainly with noxious atmospheric conditions which destroy or injure vegetation. The opening chapter deals with injuries caused by a dry atmosphere, especially those to buds, the defoliation of trees, the common honeydew of Poplars, Limes and other trees.

Some injuries, like dry rot of Mangels, the dropping of flowers, and the failure of plants cultivated in rooms—none the less important because so common—are investigated. At the close of this chapter we find mention of the hard-coated seeds of leguminous plants which are also due to the dry atmosphere of hot summers.

In contrast to the last chapter, the next one deals with superabundant atmospheric moisture, and the injuries caused thereby to Potatoes, Vines, &c., are investigated. The well-known "intumescences," i.e., small, whitish outgrowths from the surface of the leaves or leaf-ribs, are explained as being mainly due to this cause. One of the commonest intumescences occurs on the pods of Peas, appearing like a whitish scab on the exterior of the pods, which can be easily removed. This concludes the first volume so far as published. We expect to see in the next issues a discussion of the influence of gases and smoke, and are anticipating a careful investigation of the very common injuries caused by these agents.

The parts reviewed have excellent illustrations which help to easily explain the injuries dealt with in the text.

SECOND VOLUME.

Beginning with the injuries caused by the lowest forms of plant life, this volume opens with a thorough exposition of the plant diseases caused by bacteria. Cases of injury resulting from infection by various forms of these minute organisms are by no means rare; we meet with a number of them in our farms and gardens. Bacterial diseases of Potatoes, Tomatoes, Cucumbers, the well-known Hyacinth disease, and numerous others are here studied. Though many of these diseases have been recorded in Britain, their descriptions have only been published in periodical journals, and at various dates, so that the references are not easily traced when required to assist in the determination of a suspected case. In consequence of this, the present compilation by Prof. Lindau, giving a careful survey of the researches accomplished in this direction, will be of very great aid in the discrimination of a disease. The diseases are arranged according to the natural families of the plants, e.g., Conifers, Araceæ, Geraniaceæ, Liliaceæ, Iridaceæ, &c. A separate chapter deals with the bacterial diseases of the Potato, and the summary concludes with bacterial diseases of doubtful nature.

It seems only natural to find in subsequent chapters notes on nitrifying bacteria, though it is extremely difficult to say whether these organisms, with their curious symbiotic mode of life, should, or should not, be ranged under the head of plant diseases!

The student of plant-diseases will find Sorauer's Handbuch a great help, because of its easy and simple arrangement. The foregoing chapters in this volume deal only with diseases caused by bacteria, the succeeding ones deal with those caused by the higher fungi. After enumerating the divisions of these fungi, the author proceeds with his account of the parasitic forms and unfortunately arranges his work on the basis of a classification of the fungi. It would have been more advantageous to have adopted an arrangement according to the natural family of the host plants. This, however, would not have been quite easy, as many fungi are found on plants of different natural families, and the descriptions would then—if briefly—have had to be repeated. We presume that there will be an index of host-plants, by means of which one may more easily lay one's hand on the disease-causing fungus.

We are unable to give here instances of the many diseases investigated, but turn at once to a malady which is exciting special interest among us at the present day—the American Gooseberry-mildew, of which we have read a good deal in the columns of the *Gardeners' Chronicle* in recent times. It is interesting to note that Prof. Sorauer points out that there is a possibility that this disease may invade Germany (published in 1905), and advises fruit growers to take steps to deal with it should it be introduced. We have, of course, learned in the meantime that it has appeared in Germany. The author refers to the methods of

combating the disease in America, and states that spraying with one ounce of potassium sulphide dissolved in two or three gallons of water has given the best results. In addition, he states that a period of hot weather seems to favour the spread of the fungus—but he does not unnecessarily alarm the growers.

The four parts of this volume, now published, show plainly that this difficult subject has found its complete master. The drawings, which are plentiful, are a great help to the student and reader.

Of the third volume only one part has been issued. This part is prepared by a specialist, Dr. L. Reh, of Hamburg. He begins his subject with the diseases caused by nematoid worms (eel-worms), describing injuries to Cereals, Onions, Hyacinths, Cucumbers, Clover, Potatoes, Mangels and Strawberries. Dr. Reh gives at the conclusion of each chapter an account of the means to be used to combat the pest, and a list of its natural enemies. The following chapters deal with the injuries caused by snails, crustaceans, millipedes, &c. From what we have now seen of this work—and that is the greater part—we can thoroughly recommend it. One's only regret is that the student must master the German language before he can appreciate this work by these German authors, who deserve to be complimented for the way in which they have dealt so thoroughly with even the smallest detail of their subject, a manner too often lacking in the work of British scientists. *H. T. Gussow.*

THE COUNTRY GARDEN.

I HAVE often been struck with the lack of attention that the majority of English gardeners pay to the setting or background of the different portions of the garden. It is worth while to consider the full value that some singularly and appropriate background may have in enhancing the beauty of some particular subject. Let me enlarge somewhat, and give a few illustrations to make my meaning clearer.

I know an old garden in which Yuccas seem to have greater beauty, greater stateliness, and dignity than in any other garden I have ever seen them. Why is this? They are finer specimens than are thousands to be seen growing in other gardens, but they are planted at a considerable elevation, and you get their stern, clean-cut foliage cut out against the sky. A velvety lawn rises up into a wide, flat-topped mound, and it is on this summit that the Yuccas are grouped, very carefully grouped, for they are not overcrowded and closely massed, but with space between each—and, as I have said, nothing behind them but sky—and the effect is wonderfully characteristic.

And now to take such a plant as the Foxglove. I have seen an experienced gardener plant these in a border under a wall, when he had not the means of supplying them with a beautiful woodland background. In the one case there would have been a sense of delightful congruity and suitability, whereas, planted as they were, and charming as they were there, they had not the picturesqueness that they would have had with the wilder setting. It is a very subtle sense this sense of appropriateness. My friend had given Nicotiana and Cannas a woodland background. He never understood the mistake he had made, nor could he be made to see it. Perhaps, after all, it is a thing that has to be felt rather than seen, but it is worth a great deal to try to realise it, and it requires, I think, more especially that we study to realise the character of the plants that we use—a study that should not be difficult when dealing with plants that are represented in, or have near relationship to, our native flora, as is the case, of course, with the Foxglove. An old wall can be a charming setting for plants, so long as the right plants be chosen.

There are a few subjects of comparatively recent introduction that have already proved themselves valuable additions to our gardens. Succeeding the double Arabis came a double form of *Alyssum saxatile*. It has not made half the way it deserves to make, for I keep well within the bounds of truth when I say it is one of the indispensable subjects for late spring display in the rock garden. It does not produce seed, therefore plants must be purchased. The single form is beautiful, but this double one is far more enduring; and, instead of a brief and brilliant effect produced by masses of *Aubrietia*, *Saxifraga Composia*, and single *Alyssum*, that is to say, a splendid display of mauve, white, and clear, clean yellow, we get the same effect with the double form, and a sustained one. The other plants I have mentioned are famed for their long endurance, with the exception of the single-flowered *Alyssum*.

I do not think we experiment sufficiently with our plants. If a subject does not flourish in one position in the garden, it may do so in another. One of the most difficult positions to cater for is the hot, parched border, so far as July and the later months are concerned. These parched borders often make ideal and charming displays of colour during the earlier months. But to get plants to flower there in anything like perfection after June is a difficult matter. Among the most decorative plants that succeed better than others must be mentioned the *Galega*. It is not so good as under more favourable conditions, but still creditable. Study its roots and that will reveal the secret. It runs deep down into the soil, and the roots are strong, tough, and plentiful. It can, if it have but a deep root run, get down far below the surface and defy the surface heat and dryness.

Another subject that proves itself invaluable in the same border is *Lilium candidum*. Sometimes I have seen a cool, moist position recommended for the plant, and I have tried it over and over again in these cooler aspects, but nothing succeeds like the border that gets to powder during summer droughts. The truth is, the plants get ample moisture during their growing period, and the thorough ripening during the hottest weather is beneficial.

Yet another capital subject for this border is *Statice latifolia*, and other varieties—*S. Gmelini*, *S. sinensis*; and among the *Sedums*, *S. spectabile* proves a grand addition. *Practical Gardener.*

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

LATE PEARS.—One of the choicest Pears I have grown both in the North and in the South of England is *Nouvelle Fulvie*. It was named by F. M., p. 133, and I consider it to be one of the very best Pears in existence. In recommending any variety of Pear, much depends upon the culture it will receive, and the soil and situation must also be taken into consideration; for instance, in the north I had fruits of *Nouvelle Fulvie* in good condition in March, but in order to keep them thus late the fruits were allowed to hang as long on the trees as possible, and when gathered they were placed in cool storage. This Pear is not grown so extensively as its merits demand, for it rarely fails to produce a crop of fruits which, when well grown, are of splendid quality. I admit it cannot be termed a handsome fruit, for it is somewhat irregular in appearance, but this does not affect its edible qualities. In the south or western counties it does well grown as a bush or pyramid tree, and in the north it should be planted against a wall. The fruits are above medium size, pyriform in shape, with a dull yellow skin that is thickly covered with russet, whilst the exposed side of the fruit is a bronzy-red colour. The flesh is melting, very juicy, and, as before stated, for a late Pear the flavour is exquisite. The tree is a compact grower. I considered it one of my best late varieties when grown as a cordon on the Quince stock. In 1900 this

variety was awarded a First-class Certificate by the Fruit and Vegetable Committee of the Royal Horticultural Society. President Barabé, a variety recently referred to by Mr. Cook, is also less known than it should be, and of this variety I can only note its value from trees grown in the south. As a cordon-trained tree it was excellent and a valuable late winter variety. This is a much newer introduction than Nouvelle Fulvie. The fruit is large, and with a clear lemon-yellow coloured skin and greenish-white flesh that is melting and possesses a pleasant aroma. The tree is of compact habit and is very prolific; grafted on the Quince stock it makes a grand bush or pyramid tree and a fruitful cordon. This variety is excellent for late winter supplies, and I have had from very young trees good fruits late in February: in the north it should be a good March variety. This Pear was also given a First-class Certificate by the Royal Horticultural Society a few seasons ago. Other well-known varieties were named by Mr. Cook. I quite agree with him in his remarks concerning Passe Crassane, but it is a rather difficult Pear to perfect in some gardens. This variety has on several occasions been staged in grand condition by Mr. Geo. Woodward, Barham Court Gardens, and at a season of the year when good Pears are very scarce. For years I failed with Passe Crassane, grown in the usual manner both as wall-trained and pyramid trees in the open, till close pruning was abandoned and a greater freedom of growth allowed, with liberal food when the fruits were swelling. I observed how well a small standard tree of this variety that was rarely pruned cropped, whereas closely-cut trained trees failed to fruit. In the north the fruit was sound well into March and possessed good flavour at that date. I fully agree with Mr. Cook concerning Knight's Monarch and how badly this variety drops; but standard trees in Worcestershire always gave a fair supply for March and even later. In this case the fruits were thinned, gathered very late, and given cool storage. Better known or recently introduced varieties include Beurré Pèrre (this is a delicious Pear and in season in February and March), Le Lectier, and the smaller Duchesse de Bordeaux. *G. Wythes.*

SPRING FLOWERS AT FIR GRANGE.—Although much later in flowering than usual, the numerous bulbous plants and rare shrubs in the cleverly designed and interesting gardens of W. A. Binley, Esq., at Fir Grange, Weybridge, present a fine show. The earliest of the Daffodils, *Narcissus cyclamineus*, and *N. minimus* are fully out, some of the bulbs bearing four or five scapes each. In shady places beneath the Pine trees (these Conifers are a feature in the garden), patches of *Cyclamen hederifolium* and *C. Coum* are in bloom, and the species of *Helleborus* in various nooks are densely set with buds. The spring *Saxifragas*, *Hepaticas*, *Anemones*, *Snowdrops*, *Leucojums*, and other spring flowers are well in bloom, and a continuous succession of flowers is assured. At Fir Grange are collections of Bamboos, Tree *Pæonies*, and many other plants which are generally regarded as "tender," but although the winter has been a long one, nothing of importance has perished, and the Bamboos have wintered excellently. A large bush of *Hamamelis arborea*, the leafless stems densely covered with its gold and claret coloured flowers, is now a very beautiful object. *J. O'B.*

ON LENDING A HAND.—Besides the many duties devolving upon the gardener and his assistants in the garden proper, there are often calls from many quarters to "lend a hand" to do something quite outside the general routine. Not that the time actually taken to do the work forms a high percentage during the year, but there is undoubtedly a disorganisation of the proper run of work when men are called off from a job "just to lower a tree." Perhaps the tree is half a mile away—across the park. "Won't take more than ten minutes." Put it at an hour before the tools are again at work, and, meanwhile, someone is waiting for the men to come back—"cannot go on until they come." In many a garden the regularity of the work suffers for want of consideration on the part of the powers that be, and the gardener has his worries increased. Through the shooting season his men may be wanted for several days—may be at in-

tervals of a week or two, or successively—to go "beating." To this there is less objection than to most hindrances of the kind, because the men not only like the change of work, but they find it to their advantage; and, moreover, there is a better chance, at such a season, of catching up the garden work. The most trying period is during spring and summer; cropping is due, the weather is suitable, all hands go out and commence to work with a will. Alas! "Please —" Who does not know that plaintive messenger? What gardener can answer him with a smile? Then, again, on many estates it is customary for a portion of the garden staff to "lend a hand" in the hay-field or corn harvest. I admit that it is not an easy matter in these days to get labourers enough to save fifty or one hundred acres of hay, even by booking them a month or two beforehand. The work must be done, and those upon the estate are often called upon to do what would be done by occasional help if that help were procurable. Thus it is that the garden is robbed of its labour when the fruit season is in full swing; weeds are growing apace, winter crops are waiting to be planted, and a hundred other things demand attention. The gardener is anxious to make the best of his fruit crop, and to secure a good start for the winter. He dislikes seeing the weeds growing, and does not feel happy to remember that to-morrow, if it is fine weather, his men will be in the harvest field, and not hoeing in the garden. Of course, there are gardens where this state of things does not exist. Some employers are sympathetic, and often try to compensate by sending farm-hands into the garden to work up the time equivalent to that which the farm received, but this does not always work out successfully; the season has gone on and cannot be overtaken; the work is strange, and after a busy and tiresome harvest the men, however willing, are necessarily spent. Such light work as picking small fruit may be done by youths or women, and this can be almost left out of consideration compared with digging, hoeing, and carting water. Many a gardener and employer can see the force of all this, but how can it best be remedied? Covert-beating, hay-making, occasional calls upon the labour staff, such as for carpet-beating, drain-opening, road-repairing, dangerous tree felling, &c., &c., must be done by someone. Pensioners of the estate may do some things, but they are few. Labour-saving instruments may accomplish much, and, so far as the farm work is concerned, this is the only remedy yet in view. As for the rest, "what cannot be cured must be endured." Mutually, the employer and the gardener must adjust their demands with as much goodwill as their good natures and the circumstances permit. To "lend a hand" may lead either to unpleasantness, or to mutual goodwill and gratitude. The former is inevitable if there is not forbearance on both sides, and the latter is equally possible if there is cheerful reciprocity. All gardeners are not diplomats, nor are employers and stewards for that matter. Still, the thing may be adjusted by careful forethought by all concerned if time is taken, notice given to each party, and the thing is not rushed. By rushing and want of consideration the best of tempers may be spoiled, but by care, what looks like failure may be turned into tolerable success. *Careful.*

AN IMPOSITION.—A correspondent writes to me from a village near Swansea:—"I purchased some Carnations at my door to-day from a man who stated that he was a representative of yours, and produced your catalogue. I should be glad to know if he is an agent of yours, and if he and his roots are genuine." As I have no representatives, I wrote for particulars. These are as follow:—A man called at a large house, when the owner was out, and produced my catalogue, saying he had travelled down to Swansea with a large order for Carnations for Mr. P. (a gentleman who has a fine house and grounds with professional gardeners), that there was a mistake somewhere, as he had some left over, those in his hand—seventeen plants, which he did not like to carry back, &c., &c. It was a lame tale, but the lady, a lover of Carnations, was tempted and bought them. My correspondent, a doctor, saw the same man, with a comrade, later in the day, still getting rid of a surplus stock of Carnations. Catalogues are easily obtained, and a good name may be jeopardised by swindlers such as these. *J. Douglas.*

CATS IN GARDENS.—*Jason* (see p. 160), would do well to found more homes for the stray cats which have been thoughtlessly and cruelly turned away by the so-called lovers of cats. An unsuccessful attempt was made, some time ago, in one of the parks, to photograph one of these castaways and her progeny under a lavender bush, where the kittens were born. Surely there are few city residents who seeing a gaunt, hungry, miserable-looking specimen of a cat preying on our only too few London songsters would be disposed to consider it "an asset of city life." *A. J. Hartless.*

CAUTION.—There is travelling at the present time a man who professes to represent a firm known as the Gibson Scotch Tweed Manufacturing Company. He represents his goods as being of extra good quality. I bought some at 5s. 6d. the yard; I took it the same night to a tailor and asked his opinion of it. He told me he could supply me with better stuff at 2s. 4d. the yard. One thing which tended to allay my suspicions was his remarkable knowledge of gardeners about the country. Among other well-known men he mentioned as among his customers were such men as Mr. Bates, Mr. Barnes, Mr. Gibson, &c., whom he professes to have served for years. I am writing to warn others. He is a man of medium height, with a ginger-coloured moustache, between 40 and 50 years of age. *One of His Duples.*

SOCIETIES.

ROYAL METEOROLOGICAL.

MARCH 20.—The monthly meeting of this society was held on the above date. Dr. H. R. Mill (president) in the chair.

Major B. F. S. Baden-Powell gave a lecture on "The Exploration of the Air." He began by saying that the atmosphere forms a vast ocean above us, an ocean but little explored. We crawl about the ground like crabs on the bottom of the sea; we make our meteorological observations down on the ground, ignorant of all that is going on in the midst of that great expanse of air above our heads where the clouds hang about, where the rain and the hail are formed, where the lightning flashes have their origin. We look to the cross on St. Paul's, or the top of the Eiffel Tower as the most elevated points at which to observe the mechanism of the atmosphere, yet these compare to the aerial ocean but as a pin stuck in the carpet does to the air of a room. If all the clouds in the sky were suddenly solidified, in their various shapes and different elevations, what vast realms of unexplored territory there would be! But even though not solid land, there is still plenty to explore in these regions of ever-changing cloudland. If we can mount up among them, we can ascertain the temperature, the humidity, the air pressures, the electrical effects, and many other points on which we are at present very ignorant.

There are two classes of people interested in the exploration of the atmosphere: (1) The meteorologists, who study it chiefly to find out about the weather, and (2) the inventor, who would utilise it as a highway of travel. The aerial navigator will want to know all about the currents and the conditions of the air, while the meteorologist will derive the utmost benefit from the ability to visit any parts of the atmosphere. There are three means now at the service of man by which he may ascend into these desirable regions, or may send up self-recording instruments to probe the mysteries of the skies, viz., balloons, kites, and flying machines. The balloon, although at the time of its invention it was hailed with acclamation as promising the conquest of the air to man, yet it is now realised that it is not capable of much practical application. It is nevertheless useful (1) as an observatory for scientific investigation; (2) as a means of reconnaissance in war, and (3) as a most agreeable way of spending an hour or two in blissful peace and sublimity. But recently great strides have been made in the improvement of the balloon in the way of providing it with engines and propellers, so that it may be driven to any pre-determined goal. Twenty-five years ago the French Government made the first dirigible airship, and now they possess one, if not more, that seems to be a really practical air vessel of war. Count Zeppelin,

in Germany, has also produced a machine which, in point of size as well as in speed, has beaten all records. Going to the other extreme, we have small balloons now capable of attaining the greatest heights carrying self-recording instruments. Such contrivances have recently ascended to the enormous altitude of 82,000 feet, or nearly 16 miles above the surface of the earth. Closely connected with this subject of "ballons sondes," as the French call them, is that of meteorological kites. These also have been much improved in recent years, and instruments lifted by kites retained by steel wires have actually ascended to a height of 4 miles. Kites of a much larger dimension have also come into use during the last few years. At Aldershot they have been regularly introduced into the service. Men were first lifted by this means in 1895, in which year the lecturer made a number of ascents up to 100 feet high, but improvements have gradually followed until now men have actually gone up to a height of 3,000 feet, an elevation practically beyond the reach of rifle bullets, and so high as to render the aeronaut almost invisible.

Major Baden-Powell, in conclusion, referred to a subject which, if it has not hitherto had any very practical results, yet promises to bring about perhaps the most extraordinary changes in the life of man than have resulted from any other of the marvellous inventions of the 19th or 20th centuries. The flying machine has come, and it has come to stay. Years ago, people argued that it was impossible to lift in the air that which was far heavier than the air. But the advocates of the cause pointed to the birds, and there was no gainsaying that the thing was possible. Then the pessimists cried that it would not be possible to balance the apparatus without the intelligence of a bird, but models were made, finally so good as to fly for three-quarters of a mile. Then men took to gliding on wings and sailing on the wind. Huge machines were constructed with very light engines, and at last during the last two or three years, not only have men been successfully raised off the ground, but they have been able to sustain themselves in the air for half an hour at a time. Very little more remains now to be done before we can say that man has veritably conquered the air.

SCHEDULES RECEIVED.

DARLINGTON HORTICULTURAL SOCIETY'S Spring Flower Show, to be held in the Drill Hall, Darlington, on Wednesday, April 24, 1907.

BOLTON HORTICULTURAL AND CHRYSANTHEMUM SOCIETY'S twenty-first exhibition, to be held in the Albert Hall, Bolton, on Friday and Saturday, November 15 and 16.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending March 28, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—Except in the north of Scotland the greater part of the week was dry and fine, the sky being generally very free from cloud. A thunderstorm occurred at Lairg on Sunday night, and at Armagh on Tuesday; lightning was observed at some other northern stations early in the week, while on the night of Thursday there was an auroral display in various parts of Scotland, as well as at Dublin and Roche's Point.

The temperature was above the average very generally, the excess being greatest (81°) in England E., and least (0.7°) in Scotland N. and Ireland N. The highest of the maxima were recorded, as a rule, on Thursday, and ranged from 61° in the Midland Counties and 60° in England S., to 56° in Scotland E. and to 51° in Scotland N. The lowest of the minima, which occurred during the latter half of the week, varied from 28° in England S.W. (at Llangammarch Wells) and 26° in England S. and the Midland Counties to 30° in the north and north-east of Great Britain, and to 25° in the Channel Islands.

The mean temperature of the sea.—The water was rather colder than during the preceding week on many parts of the Atlantic seaboard, but warmer elsewhere, the rise being 2° at Eastbourne and Cromarty and 2.7° at Kirkwall. The actual temperature ranged from about 47° on the south-western coasts of England and Ireland to a little above 40° on the east and north-east coasts of England, and to 39.5° at Cromarty.

The rainfall exceeded the normal in Scotland N., Ireland N., and England N.W., but was less in all other districts.

The bright sunshine was abundant in all districts except Scotland N. In England S. the percentage of the possible duration was as high as 70, and in England E. and N.E. 67, while elsewhere the percentage ranged from 64 in the Midland Counties and 62 in the English Channel, to 49 in Ireland S. and to 29 in Scotland N.

GARDENING APPOINTMENTS.

[Correspondents are requested to write the names of persons and places as legibly as possible. No charge is made for these announcements, but if a small contribution is sent, to be placed in our collecting Box for the Gardeners' Orphan Fund, it will be thankfully received and acknowledged in these columns.]

Mr. A. ALDERMAN, Gardener for the last 18 years to the late J. D. ELLIS, Esq., of Sparkin House, Worksop, as Gardener to the Hon. H. W. FITZWILLIAM, Wiggantherpe Hall, York.

Mr. W. HOWE, Junr., late Gardener to Lord STANLEY, Coworth Park, Sunningdale, Berks., as Gardener to H. ROBERTSON, Esq., Alice Holt, Bentley, Farnham, Hants.

Mr. ERNEST MARKHAM, Foreman in the Gardens at King's Walden Bury, Hitchin, and previously under Mr. Geo. BURROWS, at the Dell, King's Norton, as Gardener to LADY CHICHESTER, at Arlington Court, Barnstable, Devon.

Mr. C. H. HALL, until recently Foreman in the Gardens at Swinfield Hall, Lichfield, as Gardener to CLIFFORD J. COVEY, Esq., M.P., Llantarnam Abbey, Newport, Mon. [The 2s. has been put into R.G.O.F. box.]

Mr. R. TEELE, until recently Gardener to Col. C. H. BIRD, of Crookhey Hall, Garstang, Lancs., as Steward and Gardener to G. P. FITZGERALD, Esq., The Castle, The Island, Waterford.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

BOOKS: *Farming*, by W. M. Todd, M.A., published by J. M. Dent & Co., Bedford Street, London, W.C.

CALLA ELLIOTIANA: J. E. H. Twin flowers and other variations in this plant are often received by us, but we do not remember so large a number as 12 in one batch as in your case. It is not fasciation—not twin flowered—but one of the lower leaves has become spatheaceous, probably from intensive culture. We shall be pleased to receive your help in compiling our report of the fruit-crops, and will send you a form later.

CYTISUS (GENISTA) FRAGRANS: *Niphotos*. Take cuttings of the young wood 2½ or 3 inches in length with a "heel" attached to each if possible. Insert these in sandy soil in small pots and put the pots under a bell glass or in the propagating frame in a warm house, where the atmospheric temperature is kept as high as 60° at night-time. When the cuttings have formed roots remove them from the close atmosphere of the bell-glass, or frame, and gradually inure them to a greater degree of light and air and rather less heat. Repot them into larger pots as this becomes necessary, and cultivate them in the greenhouse or partially warmed frame. With proper treatment they should make nice little plants in 5-inch pots within 12 months after the cuttings were taken.

EMPLOYMENT IN THE LONDON PARKS: J. B. In the case of Kensington Gardens, Hampton Court, Hyde, Regent, and Greenwich Parks, you must apply to the respective superintendents for a form of application. Applications for employment in the London County Council parks and gardens must be addressed to Lt.-Col. Sexby, 11, Regent Street, London.

HISTORY OF THE GARDEN PEA: P. W. H. We cannot trace the articles you mention. An exhaustive paper on the subject, delivered by Mr. N. N. Sherwood, appeared in vol. xxii., p. 239, of the *Journal of the Royal Horticultural Society*.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. Correspondents not answered in one issue are requested to be so good as to consult the following numbers.

FRUITS: *Subscriber*. Kindly send another specimen. The first was rotten on arrival.—*James Green*. 1, New Bess Pool; 2, Roi de Angletierre? 3, Pear Beurré Rance. PLANTS: J. D. 1, *Buxus sempervirens* var. *rosmarinifolia*; 2 and 3, B. s. var. *elegantissima*; 4, B. *sempervirens* (seedling form unusual); 5, B. s. var. *aureo-marginata*; 6, B. s. var. *arborescens*.—W. W. *Iris japonica*, figured in *Bot. Mag.*, t. 878, as *Iris chinensis*, and commonly known in gardens as *Iris fimbriata*. A well-known plant.—R. O. 1, *Bletia Shepherdii*; 2, B. *verecunda*; 3, *Phaius grandifolius*; 4, *Colax jugosus*; 5, *Lælia longipes*; 6, *Maxillaria picta*.—R. N. H., *Chipping*. *Billbergia nutans*, figured in *Bot. Mag.*, t. 6,423.—Mrs. L. G. The common Snowdrop, *Galanthus nivalis*.

ODONTOGLOSSUMS AND IRIS: W., *Notts*. The darker *Odontoglossum* of which you send a photograph is probably *O. Hunnewellianum*, or it may be of the darker section of *O. Adrianæ* (*Hunnewellianum* × *crispum*), the smaller forms of which approach *O. Hunnewellianum*. The other is probably ordinary *O. Adrianæ*. These are not now very valuable. We thank you for photograph of *Iris japonica* (*fimbriata*). If flowers of the *Odontoglossums* were sent, we could give a better opinion.

PEAR TREE: X. Y. Z. We are not certain of the cause of failure. Send us some fruits when they are in the condition you have described. It would be as well to spray the tree directly the buds commence to open with a weak solution of the Bordeaux mixture, adding one ounce of Paris Green to 10 gallons of the diluted mixture. If the injury is caused by the Apple blossom, Weevil or the Pear midge this spray will have a deterring effect.

PELAGONIA LEAVES: *Taxus*. The blisters on the under surface exhibit no trace of fungi. An expert entomologist can find no evidence of insects. He reports "I cannot find a trace of any organism." At present it must remain a mystery until other evidence is secured. The bleached spots greatly resemble those caused by parasitic leaf fungi, but they are entirely barren, and without any trace of mycelium. Such spots are sometimes caused by water drops. In this instance the leaves afford no clue.

PETROL FUMES AFFECTING PLANTS: *Enquirer*. You had better be guided by your gardener's advice, as he must have more knowledge of the circumstances of the case than ourselves. Make the partition as secure as possible, in order to prevent the gas from penetrating direct from the garage into the conservatory.

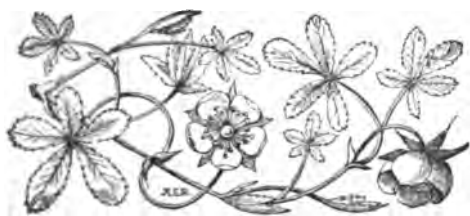
SITUATIONS IN THE UNITED STATES. In reply to numerous enquiries we give Mr. Bunyard's full address:—Mr. Harry Bunyard, c/o Mr. Boddington, Seedsman, New York, U.S.A. We cannot undertake the responsibility of advising anyone to undertake so serious a step, but we think a British colony such as Canada would be more suitable for British subjects. Whatever country be chosen the emigrant must take what comes and work hard.

SWEET PEAS FOR EXHIBITION IN THE FIRST WEEK OF AUGUST: *Enquirer*. Sow the seeds in about the middle of May, thus allowing the plants 10 weeks' cultivation. The ground should be deeply dug and well manured before sowing is done. The plants will need liberal supplies of water during growth and the ground about the roots should be covered with a mulch. Thin out the number of flowers on each plant, and shade the brightly coloured varieties from hot sunshine, otherwise they will be liable to "burn."

TRICHLORIUM: E. O. J. We suspect the bulbs sent you under the above name are those of *Ixiolirion*, a member of the *Iris* family. The plant is somewhat tender, and if cultivated out-of-doors in your locality (Staffordshire) the bulbs should be planted in a warm border of light, porous soil, and facing to the south.

TULIPS DISEASED: J. R. P. The plants are affected with the Tulip disease—*Botrytis*. See answer to J. E. W. in our last issue.

COMMUNICATIONS RECEIVED.—R. H. B.—*Dunstable Gazette*—M. Gentil—J. Burtt Davy—W. D. G.—H. M. V.—R. Agric. Society—E. S. S.—R. H.—E. S. C.—University of Birmingham—W. G. S.—W. B. H.—Cork—W. B. H.—Kew—Laxton Bros.—Dr. Perez, Orotava—N. F. E.—*Inquirer*—H. B. M.—W. H. C.—W. H.—K. & Son—A. B.—F. L.—J. W. C.—R. H.—R. H.—D. H.—W. B. C.—J. H. K.—W. A. C.—A. T.—T. W. B.—J. C.—T. A. C.—M. N. (one shilling has been placed in the R. G. O. F. box).



THE Gardeners' Chronicle

No. 1,058.—SATURDAY, April 6, 1907.

CONTENTS.

Apples, late-keeping ..	228	Oaks, some large ..	228
Benevolent Institution, Gardeners' Royal ..	221	Odontoglossum crispum ..	216
Black Currant mite, the ..	221	"Rosemary" ..	218
Books, notices of—		Palm, a European ..	218
Farming for Ladies ..	222	Photinia serrulata in ..	228
Kew Bulletin ..	221	Cornwall ..	218
Plant Diseases, text- book of ..	222	Pillar plants ..	218
The Book of the Open Air ..	222	Plane leaves withering ..	224
Ceanothus thyrsiflorus ..	221	Plant ecology ..	220
Cedar, the Childrick ..	223	Pruning, the advantages and disadvantages of ..	228
Ceylon Botanic Garden, Peradeniya ..	215	Societies—	
Coltsfoot as a pot plant ..	221	Linnean ..	226
Condy's Fluid ..	224	Manchester and N. of England Orchid ..	226
Croquet lawn, how to lay out a ..	228	Royal Botanic ..	226
Douglas fir, varieties of ..	228	Royal Horticultural ..	224
Flower shows and Bank Holiday ..	222	Spring flowers in Co. Cork ..	223
Foreign correspondence—		Sub-tropical bedding in parks ..	218
The gardens of Manila ..	216	Swanley College ..	221
Forestry exhibits at forthcoming Lincoln show ..	221	Trees and shrubs—	
Heaths, hardy, at Kew ..	222	Catalpa cordifolia ..	217
Insect and fungus pests ..	221	Conifers at Durris ..	217
Jasminum primulinum ..	223	Erica lusitanica ..	217
Lachenalia Nelsoni ..	224	Retinosporas ..	217
Law note—		Trees, transplanting large ..	222
Secret Commission ..	222	Weather in Cornwall ..	223
Lindley medal, the ..	222	Week's work, the—	
Magnolias at Leonards- lee ..	223	Apiary, the ..	219
Mahwa tree, the ..	223	Flower garden, the ..	219
Mistletoe on Lime ..	224	Fruits under glass ..	219
Mussel scale, the ..	222	Hardy fruit garden ..	218
		Kitchen garden, the ..	249
		Orchid houses, the ..	219
		Plants under glass ..	223

ILLUSTRATIONS.

Ceanothus thyrsiflorus, a large plant of (Supplementary Illustration) ..	214
Chamaerops humilis var. ..	216
Oak trunk measuring 91 feet in circumference ..	217
Odontoglossum crispum "Rosemary" ..	217
Spores of Pestalozzia Guepini, a disease of Palms and other foliage plants ..	215

A EUROPEAN PALM.

CHAMAEROPS HUMILIS L. ONCE A NATIVE OF THE RIVIERA.

IN the *Annales de la Société des Lettres, Sciences et Arts des Alpes Maritimes*, XIX. (Nice 1905), p. 263, Dr. Fritz Mader publishes a very interesting paper on *Chamaerops humilis* L., which deserves to be brought to the knowledge of readers of the *Gardeners' Chronicle* and will prove of special interest to those who are acquainted with the Riviera.

The dwarf Palm is the only representative of its family on the European Continent. It is a native of Southern Spain, stretching as far north as Catalogna and to the opposite African coast of Algiers and Morocco. It grows also in Sicily, Sardinia, and Southern Italy, but is rare in Corsica, where it has only been found in the vicinity of Bonifacio. It re-appears, however, on the island of Elba, the little Capraia isles, and, finally, on Monte Argentario, once an island, but now connected with the continent by sand dunes. It further occurs on the Adriatic coast, doubtfully in Greece,* and is said to be found in the Levant.

A comparatively short time ago the *Chamaerops humilis* was also a native of the

Riviera, where it reached the most northern limit of any Palm; that is, 43° 43' north. lat., as neither the Asiatic nor the American Palms advance so far north. Dr. Mader quotes ample proofs of its former localities on Mont Boron, at Villefranche, Eza, Monte Carlo, &c., which places form the warmest part of the Riviera, protected, as they are, by those high mountains which immediately slope down to the sea. The first to mention the dwarf Palm from this locality is Allioni, in his *Flora Pedemontana* (1785), vol. II.; 363, where he states it to grow "in agro nicaeensi." According to Mr. Burnat, author of the *Flora des Alpes Maritimes*, Pyramus De Candolle saw the plant there when he visited the spot with the well-known naturalist Risso on June 25th, 1808, but in his notes De Candolle remarks that he only saw a few "pieds." M. Gay, the French botanist, in a letter to Alphonse De Candolle (see his *Geogr. Bot.*, I., p. 152), states that he saw the plant near Beaulieu in 1821. Finally, the Abbé Montoliva informed Mr. Burnat in 1871 and 1875 that he had seen the Palm 15 or 16 years ago on the Mont Boron, near Villefranche, and that another "pied," certainly spontaneous, had been destroyed near Eza in the construction of the railway. The famous naturalist Karl Vogt is said to have seen the Palm about 1846 on inaccessible rocks of the Tête-du Chien, the steep mountain which rises immediately behind Monaco. Besides these accounts of eye-witnesses; Mr. Sauvaigo, the Directeur du Musée d'Histoire Naturelle of Nice, gives the following data:—The dwarf Palm was found near Villefranche, Beaulieu, Eza, la Petite Afrique. M. Gay saw it in 1821, Cambessèdes in 1826; Mr. Cosson, guided by Risso, collected leaves of a plant in 1841, which are still preserved in his herbarium. Mr. Sauvaigo remarks that the plant had to endure the extremely cold winter of 1820, when the thermometer fell to — 10° C. (14° F.); a temperature which is happily very exceptional. Ardoino, in his *Flore des Alpes-Maritimes* (1866), was the first to state that the *Chamaerops* had disappeared. Prof. Penzig, however, in a paper published in 1892 again states having heard that the plant could still be found on the rocks north of Monaco.

From this latter statement and that of Karl Vogt, it seemed possible that the *Chamaerops humilis* still existed in this particular spot. To ascertain this fact, Dr. Fritz Mader, who is perhaps the best authority on the natural history of the Riviera, explored the whole territory. As the whole of this territory lies within the zone of the French fortifications, these places cannot be visited without special permission from the French military authorities. It was therefore easily to be presumed that, if anywhere, the Palm must still be found in this region, which is always rigidly closed to the public, and thus offers the best and strongest protection to the plants growing within its limits.

Dr. Mader obtained permission, but, despite his most careful researches, he did not discover a single trace of the Palm. He found plenty of the equally interesting and rare *Leucocium hyemale* D.C. (*L. nicaense* Ardoino), which is very scarce in its other localities.

It seems therefore pretty certain that *Chamaerops humilis* is extinct from this

most northern locality. Dr. Mader goes on to state his opinion about this fact. Contrary to Mr. Burnat and Mr. Montoliva, who attribute the disappearance of the Palm to plant-collectors and gardeners, Dr. Mader believes that a plant of such vigorous growth as *Chamaerops humilis*, which was, and is still, considered wherever it grows, a bad weed, would never have been destroyed in this manner. According to him, it is the progressive and intense cultivation of the soil, the building of terraces, houses and roads, which are the real cause of the disappearance of the Palm. Certainly, as he truly states, the Palm prefers deep, good soil to bare rocks, and it was especially on this soil that men first settled. The *Chamaerops* having found, with a few other remarkable plants, a refuge during the ice-period in this warm corner, could not spread further, as the available lands but a narrow strip along the coast. Here the Phœnicians may have been the first to disturb it, and it has since been gradually diminishing. Its associates from the tertiary epoch, *Euphorbia dendroïdes*, *Ceanothus tricoctum*, *Lavatera maritima*, *Rhamnus Alaternus*, *Phillyrea media* and *P. augustifolia* were more fortunate. They established themselves on the sterile rocks, where few other plants rival them, and where man seldom comes to disturb them.

Thus the regrettable disappearance of the *Chamaerops humilis* is not to be attributed to changed climatic conditions. On the contrary, it flourishes in our gardens, wherever it is planted in deep, good soil. It is one of the most variable plants I know of. Nearly every specimen has its own distinct habit. The fruit is generally not worth much, although its pulpy pericarp can be eaten; it tastes like a Carob. There are, however, individuals with more fleshy fruits. Dr. Mader mentions a plant of these in a garden near Mentone. Alwin Berger, *La Mortola, l'entimiglia, Italy*. [Our figure 94 was sent us by M. Borner from the Villa Thuret at Antibes.]

SUB-TROPICAL GARDENING IN PUBLIC PARKS.

IT is surprising to find, considering the appreciation that is shown by the public for the efforts which some park authorities make to provide them with places where examples of so-called "sub-tropical" gardening can be seen, that this style of gardening is not more generally carried out.

Such gardens form one of the most attractive features of those London parks where examples of sub-tropical gardening are to be seen.

The sub-tropical gardens in Battersea Park may be cited as an example of what can be done by a public body in catering for the public taste in this direction. In the majority of cases no doubt the grants allowed for the maintenance of the parks are not liberal enough to allow any attempt being made to form and embellish such a garden with specimen Palms, Tree Ferns, Cycads, &c. Much may be done, however, in places where funds are limited by planting a selection of effective hardy trees, shrubs, and herbaceous plants; these, combined with the annual plants generally utilised for sub-tropical gardening, will, when arranged tastefully, made a good display and produce a most pleasing effect.

Although the cost of laying out and planting may in some cases prove to be heavy, the extra pleasure and enjoyment which the public derive show in a most unmistakable way that the re-

* E. de Halacsy, *Conspectus Flor Græcae*, III., 290, mentions it as cultivated only.

turn on the money expended is more than enough to warrant such expenditure.

Where the laying-out of a sub-tropical garden is under contemplation, it should be borne in mind by those who are concerned that there are several points on the consideration of which will depend to a great extent the success or failure of the undertaking. Every plant that is utilised for sub-tropical gardening must be

nature usually made use of in the beds and borders. The shelter is very necessary, for the majority of the plants used are those having a stately habit and large foliage, and if they were exposed to winds they would get weather-beaten and present a most unprepossessing appearance.

The soil in the beds and borders must be rich, light, porous, and well drained; such a soil absorbs heat readily and is well fitted to en-

My intention is to confine my remarks to the more hardy subjects for such a garden.

AILANTHUS GLANDCLOSA is one of the most ornamental trees. It is a very striking plant, and is suitable for planting in groups or to form isolated specimens in the grass. It is best when grown on the single stem principle, allowing only one growth to develop, which should be

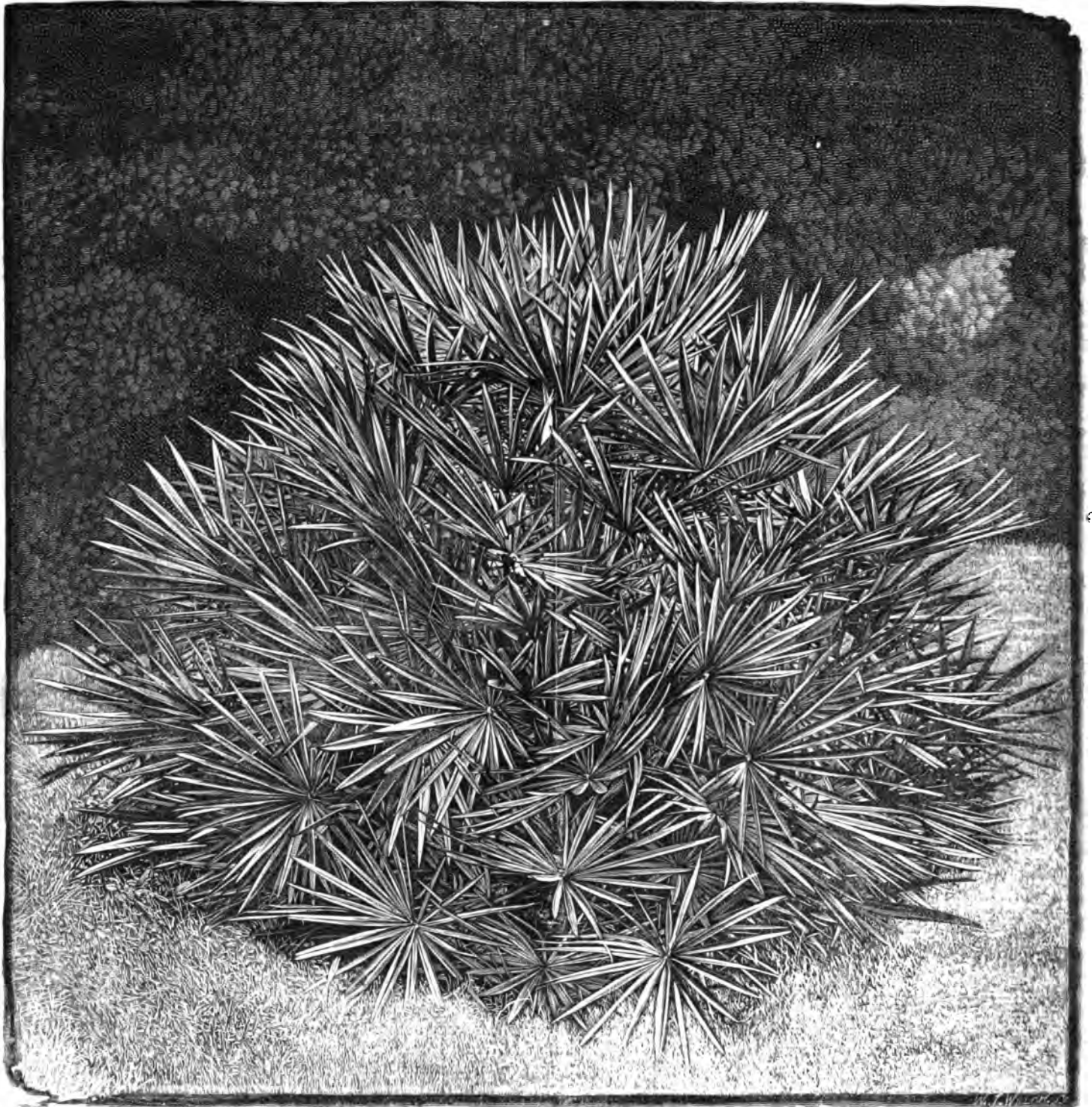


FIG. 94.—*CHAMAEROPS HUMILIS* VAR. (For text see page 213.)

grown under the most favourable conditions, so as to encourage the development of luxuriant growth.

Situation, soil, &c.—The site for the garden must be one having a south or south-west aspect, and having shelter on all the other sides; this is essential, for an abundance of sun-heat that can be conserved as long as possible is necessary to promote a quick growth, more especially in those plants of an annual

courage the active root growth necessary to ensure rapid development of abundant leafage. In those places where the soil is retentive in texture, it should be taken out to the depth of 3 feet, placing in the bottom of the holes thus made 6 or 9 inches of broken bricks or similar material for drainage, well breaking the bottom soil before placing the drainage material in position, then filling up with the soil recommended above.

pruned back to two buds during winter, the strongest being selected when signs of growth take place in spring, the weakest shoot being removed. Under good cultivation, the selected shoot will grow to a height of not less than 8 feet, and the pinnate leaves will reach upwards of 6 feet in length. It requires a fairly light soil, enriched with liberal dressings of well-decayed manure during the growing season. It may be propagated by root cuttings.

ACER PALMATUM, and varieties.—These are very beautiful small shrubs, with foliage of various tints of bronze, crimson, red, and yellow, and are very desirable for planting in the foreground of borders with taller subjects at the back. They are best when planted in a light soil, rather poor in quality; care should always be taken when planting that the roots cannot gain access to beds or borders containing rich soil, or the brilliant colour of the leaves will be displaced, and they will assume a dull colour, caused by the vigorous growth which will ensue when the roots come in contact with manure. When there are signs of exhaustion, a slight dressing of leaf-mould will be quite sufficient as a stimulant. They are propagated by grafting and budding.

A. ALIA SPINOSA and **A. CHINENSIS**.—These small trees prove hardy in the southern counties, but they are seldom seen growing out of doors. Where they can be planted in a warm corner, in light, dry soil, they can be depended on to make clean and vigorous growth. *A. chinensis* grows 5 to 6 feet, and *A. spinosa* 10 to 12 feet high. They may be propagated by stem and root cuttings.

CATALPA BIGNONIODES and **C. BIGNONIODES AUREA** are both excellent. The former may be planted in any suitable position where there is plenty of room for it to develop into a standard, specimen tree. It is very attractive and showy when in flower in midsummer. The variety *aurea* is very ornamental and well suited for planting in the grass, where the highly-coloured foliage is shown off to perfection. They thrive in any soil of fair quality and texture, and are propagated by seed, cuttings, and layers.

FICUS CARICA (the common Fig).—This is a most serviceable subject for planting to impart a tropical semblance to the garden, and is equally adapted for planting to form isolated specimens, or in association with other subjects in the borders, &c. It luxuriates in a free, rich, sandy loam, and is propagated by cuttings.

GYMNOCLADUS CANADENSIS.—The large bipinnate leaves of this species make it very ornamental, and it is a very suitable tree to plant in the borders to form a background to plants less in stature. It may be grown on the single stem system or allowed to develop into an ordinary standard. It thrives best when planted in a partially-shaded position in a deep, rich, friable soil, and may be propagated by root-cuttings and by seed.

MAGNOLIA FRASERI, **M. CONSPICUA**, **M. MACROPHYLLA**, and **M. TRIPETALA** are all most desirable, and, when established, make bold specimens. They are adapted for planting to form isolated specimens in the warmest positions in the garden. They all bloom in late spring or early summer before sub-tropical bedding can be commenced; they are, however, worthy of selection, for they make handsome foliage subjects. They should be planted in a free, rich soil, to which leaf-mould may be added with advantage, unless the soil is exceptionally light, when it would be unnecessary to use it. Layering furnishes the best method of propagation.

PAULOWNIA IMPERIALIS.—This is quite indispensable, for it is one of the most stately-habited trees. It has entire, broad, pubescent leaves, which attain a length of 18 inches, and almost as much in width, when grown on the single-stem principle, and pruned back to two buds, as recommended for the *Ailanthus*. Groups planted in the grass or borders make most striking and effective objects. A free, sandy loam, liberally enriched with decayed stable manure, suits it admirably. It is propagated by cuttings and seed.

NEGUNDO ACEROIDES VARIEGATUM.—A handsome and easily-grown small tree; is adapted for planting in groups alone, or in association with any of the other subjects mentioned in this article. It flourishes in a deep, friable loam that is well drained, and may be increased by grafting and budding.

RHUS TYPHINA and **R. GLABRA** are good plants for planting in borders that skirt the main portions of the garden. They will grow freely in ordinary garden soil, and may be propagated by layers and cuttings.

SAMBUCUS NIGRA var. **AUREA** (the Golden Elder) is a good plant for utilising in damp situations where other subjects would probably fail; it is readily propagated by cuttings.

VITIS COIGNETIÆ, **V. DAVIDIANA**, **V. THUNBERGII**, and **V. VINIFERA** are climbers, that are quite first-rate in every way. They are very effective when trained upon rustic fencing, arches, or upon pyramids made by fixing stout limbs of oak in the ground, interlocking the branches so as to make them secure, or girdling the whole with iron bands, which is the most effectual way to keep the structure firm. When such rustic work becomes covered by the vine, it forms one of the most pleasing features to be seen at any time during the season. The vines should be planted in deep, rich, loamy soil. They may be increased by cuttings of the ripened wood and by eyes.

WISTARIA CHINENSIS and **W. MULTIJUGA** are plants that are adapted for utilising in the same way as the *Vitis*, to which they make a striking contrast, owing to the foliage being much lighter and more graceful than the foliage of the *Vitis*, which is of a bold character, in *V. Coignetiae* especially. *Wistarias* like a free, loamy soil. Propagated by layers.

EVERGREENS.

The following is a short list of evergreen plants that are adapted for sub-tropical gardening:—

BAMBUS AUREA, **B. PALMATA**, **B. JAPONICA**, and **B. SIMONII** are all hardy, and are excellent subjects to plant in moist situations; they are invaluable for forming groups or single masses of greenery in the most prominent portions of the garden. They revel in a strong loam, and are easily propagated by division of the roots.

CHAMÆROPS FORTUNEI.—This Palm, if planted in warm, sheltered situations, and protected, when the weather is exceptionally cold, will survive our winters. Specimens that have become established out of doors are not common, but much admired and valued where they do exist. If medium-sized plants, that have been thoroughly well hardened and inured to our variable climate are selected and planted in good, rich loam in warm situations, and are given copious waterings in dry weather during the growing period, they will develop into good specimens in the course of a few years.

FATSIA JAPONICA proves hardy in the London parks, and, when established, soon makes fine bushes 8 feet high, and as much through. Good specimens are quite unique in character, and are very effective. A sandy loam, to which a little peat should be added, will grow this plant to perfection. It is propagated by root-cuttings.

MAGNOLIA GRANDIFLORA and **M. GLAUCA** are both excellent, and are ornamental at all seasons of the year. When they are in flower the air is laden with the fragrance of the blossoms, and the foliage is always conspicuous owing to its shining surface and bold character. They should be planted in a rich, porous loam to which leaf-mould may be added at the rate of one bushel to every four bushels of soil. Propagated by layering.

YUCCA RECURVIFOLIA, **Y. GLORIOSA** and **Y. GLORIOSA** var. **SUPERBA** are the three best of this most decorative class of plants for out-door planting. They make fine stately specimens when well grown, and when in flower they are much admired. They like a light, rich soil, and are increased by division of the roots.

There are many other trees and shrubs that might be added to this list, but sufficient have been named to furnish a selection adapted for planting in public parks, &c., where sub-tropi-

cal gardening is contemplated. In conjunction with the many herbaceous perennials and annual plants that are suitable for the same style of gardening, they are ample to furnish a garden, which would be a great attraction in all towns. Where funds are adequate, and more plants that have greater distinctive tropical characters are desired, such types as Palms, Cycads, Tree Ferns, Musas, Alocasias, &c., can be utilised, and the beauty and attractiveness of the garden will be enhanced if these can be included for its embellishment. *Puisse.*

PERADENIYA GARDENS.

REPORT OF THE GOVERNMENT MYCOLOGIST, Mr. T. PETCH, B.Sc.*

THESE gardens have been associated for so many years with the study of fungi that we naturally turn to the report of the mycologist with interest. It is, therefore, to us a matter for congratulation when we learn that the collection of fungi made by that pioneer fungologist, Dr. Thwaites, is being examined and rearranged, and that many of the fungi represented in it are being redescribed from fresh specimens. The scientific importance of this work is great, as Rev. M. J. Berkeley's descriptions were at all times extremely brief, and were in this case necessarily made from dried specimens. Systematic work is rather out of fashion just now with the younger professional botanists; it is therefore fortunate that the work has fallen into such congenial hands as it has done.

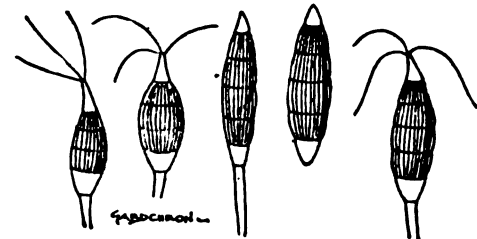


FIG. 95.—SPORES OF *PESTALOTZIA GUEPINI*, HIGHLY MAGNIFIED.

With regard to plant diseases those of the Tea plant, India-rubber tree, Cocoa, Cotton, and other economic plants seem to have received special attention.

Allusion is made to the well-known *Pestalozzia Guepini*. In this country the parasitic fungus is very common on *Camellia* leaves, where it produces those circular grey or brown spots which are almost invariably attributed by gardeners to "sun burns." The spores are beautiful microscopic objects, pale brown in colour, fusiform in shape, divided by septa into three or four compartments, the two terminal ones being hyaline. They are borne on more or less distinct hyaline pedicels and are surmounted by two or three hyaline setae (fig. 95). The fungus causes one of the best-known diseases of the foliage of the Tea plant, the so-called "grey blight." Mr. Petch says of this "one case was reported in which the fungus attacked the leaf-stalk only and defoliated the bushes without producing the usual discoloration of the leaf. In another instance it was found on an old stem 1 inch in diameter." But the *Pestalozzia* is not confined to the Tea leaves and Tea twigs, it also occurs on the Rubber plant (*Hevea brasiliensis*), on Cocoa-nut and Rose. Experiments have been instituted at Peradeniya to ascertain whether these plants are attacked by the same or different species of *Pestalozzia*.

Many tropical plant diseases seem to be due to parasitic Pyrenomycetes. Attempts have been made at Peradeniya to differentiate the numerous root diseases of the Tea shrub, which have been grouped under the name of *Rosellinia*. A new

* Ceylon Administration Reports, 1906, Royal Botanical Gardens. Dr. J. C. Willis, F.L.S., Director Royal Botanic Gardens.

stem disease of the Tea plant is described, caused by *Massaria theicola* (n. sp.), in which the fungus attacks the stem and runs upwards and downwards in the vessels of the wood. "It frequently affects one side only, crossing the bases of the branches and cutting them off from the water supply, thus causing them to wither without being actually attacked by the fungus. When it is more generally distributed through the stem the leaves turn yellow and fall off; new sickly shoots are then produced which exist until the water supply is cut off altogether and the bush dies. The fungus is not visible externally but internally, the discoloured wood definitely indicates the diseased areas, and in the blackened bark the minute 'perithecia' appear as white circular spots if the stem is scraped lightly." A similar stem disease is caused by *Aglaospora aculeata* (n. sp.). In this, however, the affected branches produce black thorns and the progress from branch to branch is slower. The diseased conditions produced by these *Pyrenomyces* are so interesting that now attention has been drawn to them other members of the same group of fungi will have to be watched in

The decoration of the stakes or plant-supports with empty egg shells (and which is well-nigh universal) adds to the bizarre appearance, though it hardly contributes to beauty.

The sacrifice entailed by the upkeep of a half-dozen of window-plants amounts to a good deal during the dry season, where, in many cases, the water for all household purposes is carried in empty tins from distant hydrants, or, in many well-known cases, is carried in bamboo tubes from wells more than one mile away!

On the other hand, the Filipino house-plant, by a process akin to survival of the fittest, like their unfed dogs, fowls, and swine, comes to acquiesce in drought conditions in a manner that is little short of marvellous.

Species of *Codiaeum*, *Panax*, *Hibiscus*, and Palms (all prime favourites) live for a month on a water supply that our gardeners would not consider a fair daily ration.

Still more remarkable is their system of potting, which greatly aggravates the dry-as-dust conditions. Most noticeable is this in Palms, which, as they become pot-bound and emit roots at the collar, are mounded up with soil until

Strongylodon macrobotrys (Gray) (Leguminosae), until overtaken by neglect, was found in the gardens of one or two Spaniards. Their gardens are generally surrounded by high stone walls, the north side of which afforded a suitable environment for the growth of this horticultural prize. So long as the wall was kept cool by frequent syringings, these precious plants thrived. I have never met them except in shady ravines, that were kept cool by the fall of cascades of water. In such places the temperature will be but 65° F., and rise to 80° F. in the drier shade of the woods one hundred yards away. It is most likely that conditions suitable for *Lapageria* would fit them fairly well. The difficulties of cultivation are not so great as is the procuring of seed. Lucky, indeed, is the collector who revisits a plant which has been a perfect sea of bloom if he finds the single pod which contains its single seed.

It is probably on this account that the seed is not listed in catalogues, nor has the plant, so far as I know, found its way into greenhouse cultivation. *Wm. S. Lyon, Horticulturist, Bureau of Agriculture, Manila.*



FIG. 96.—CROSS SECTION OF OAK TRUNK HAVING A CIRCUMFERENCE OF 21 FEET.

this country. With regard to the *Pestalozzia* on the leaves of the Rubber plant, Mr. Petch points out that while it is comparatively harmless on the leaves it kills the seedlings when it attacks the stem at the collar. Several new species of parasitic and semi-parasitic fungi are referred to in the report, e.g., *Diplodia zebrina*, *Nectria diversispora*, *Sphaeroneuma album*, *Glaosporium brunneum*, *Colletotrichum heveae*, *Asterina tenuissima*, *Ceratoporum productum*, *Botryodiplodia elasticae*, *Sphaerella crotalariae*, &c. *C. B. P.*

FOREIGN CORRESPONDENCE.

THE GARDENS OF MANILA.

THE Filipino has an inborn love for house-plants. It is within conservative limits to say that the homes of the well-to-do *all* contain pot-plants; that in the slums of the big cities, among those whose daily family expenditures for existence does not exceed sixpence, 40 per cent. of the houses contain one or more house or window-plants. In all, quite 60 per cent. or more of the dwellings are so decorated; a condition that probably will not be found in any other large city in the world.

Their taste in plants is quite another matter.

it becomes a more or less conical heap that effectually sheds all water. During the continuous rains of the wet season the soil, of course, gets wet through, but for the other five or six months, one half-inch beneath the surface the soil is dust dry.

Actinorrhizis Calapparia (Palmaceae) seems to withstand this astonishing treatment for three or four years before it finally succumbs.

In so calling this plant, I am following existing descriptions, but have lately been informed that the author has decided it to belong to a new species and genus. This charming Pinanga-like Palm is one of the most attractive medium-sized representatives of the family which occurs in the Philippine Islands. Its abundant fruits, the size of a Gooseberry, and of brilliant vermilion-red, make it truly spectacular. The maximum height of the plant is about 20 feet, and it flowers and fruits in about the sixth year. Ours is the world-wide story of the prophet without honour in his own country. *Quisqualis indica* is only found in one garden of Manila. In the suburbs, about four miles out, a single plant or sheet of it occurs that has taken possession of a rocky escarpment on the banks of the Pasig, and has fallen in billowy cascades to the water's edge. It covers an area of approximately 900 square feet, and, when in flower, is a never-to-be-forgotten sight.

OAKS IN BEDFORDSHIRE, &c.

TREES, like animals, may be infinitely little or infinitely huge, and those of the latter description often astonish us by their colossal proportions, while the former sometimes escape our notice, unless revealed by the aid of the microscope. To study the development of plants their mere size presents to us some curious contrasts. The giant Oak depicted in the illustration at fig. 96 shows one of those colossal giants which Bedfordshire has for many years been noted. The Oak, as exhibited on the carriage, is from 9 to 10 feet in length, with a circumference of 21 feet 4 feet from the ground, and is a fair representation of those fine old Oaks which are to be seen in Amptmill Park, Woburn Park, Wrest Park, &c., &c., in this and adjoining counties.

The ages of these ponderous Oaks are very doubtful. But that fine, gigantic old Oak in Panshanger Park, Hertfordshire, which has a girth of 21 feet 8 inches at 4 feet from the ground, and which, I understand, from good authority, was, a hundred years ago, an enormous tree, is still growing luxuriantly. But when we read of giant Oaks on the Continent, our British Oaks appear insignificant in comparison with them. Ray mentions an Oak existing in his time in Germany which was of such dimensions that it had been transformed into a citadel. Another of our most illustrious and philosophic botanists, Ray, measured the trunk of this celebrated Oak, and found that it was 30 feet in circumference near the ground. Evelyn and Loudon, in their works, represent several other trees with openings through which a knight completely equipped could pass freely. *George Mackinlay, Wrest Park, Bedfordshire.*

ODONTOGLOSSUM CRISPUM ROSEMARY.

THE beautiful variety of true *Odontoglossum crispum* type, shown at fig. 97, was exhibited by Major G. L. Holford, C.I.E. (gardener Mr. H. Alexander), at the meeting of the Royal Horticultural Society on March 19, when it was given an Award of Merit by the Orchid Committee. The flower, as is shown in our figure, is very broad in both the sepals and the petals, which measured nearly 5 inches across in their broadest part. The flowers are white, with a slight suffusion of rose. The inflorescence exhibited was carrying nine flowers.

TREES AND SHRUBS.

RETINOSPORAS.

THE Retinosporas include some of our best hardy evergreen shrubs. They are youth-forms of several species of Conifers, either Juniperus, Thuya, or Cupressus, but are, in the majority of gardens, still found and referred to as Retinosporas. That they are eminently suited for the embellishment of our lawns and pleasure grounds few persons will deny; their Fern-like foliage, symmetrical growth, and beautiful tints of the many varieties claim from the planter more than passing notice. They thrive best in a good sandy loam, yet grand specimens are to be found growing in retentive soils with a porous substratum that enables the water to drain from about their roots. Autumn planting is preferable on most soils, particularly where it is of a light or sandy nature, for planted at this time the roots have a much better chance of laying

yards. Planted in the best of ground, few of the varieties reach 40 feet in height in the same number of years, with the exception, perhaps, of *R. obtusa* (*Cupressus obtusa*). [A true species.—ED.] This tree forms a beautiful specimen, and is much admired for its bright shining foliage. There are several varieties of *R. obtusa*: *R. aurea* forms a neat shrub of small dimensions, with deep golden-coloured foliage during the growing season, and changing to a dark green shade the following year. We have two good specimens of this form about 25 feet high and 15 feet through at their base, the lower branches sweeping the turf. There is also *R. obtusa compacta*, a robust yet dwarf-growing variety of much excellence. *R. filicoides* is another dwarf, dense-growing shrub, with deep green foliage, while *R. filicoides aurea*, sometimes met with under the name of *R. tetragona aurea*, is similar in growth, but has rich golden foliage, as its name implies. *R.*

being a golden yellow colour that changes to a deep green as the season advances. Last, but not least, is the lovely *R. squarrosa* [a form of *Cupressus pisifera*]. This Retinospora is remarkably distinct from all the others; it is a real gem; the bluish-grey tint of its foliage is remarkably handsome. *J. Mayne, Bickton.*

ERICA LUSITANICA.

ALTHOUGH in the neighbourhood of London this species does not assume the proportions it does in Devonshire, Cornwall and other places, where the climatic conditions are eminently suitable for shrubs from semi-tropical regions, the succession of mild winters that have been experienced since 1895, has resulted in the production of fairly good specimens. At Kew a number of plants are now nicely in bloom, and will remain in good condition for some time to come. It is a native of Spain and Portugal, and is known in many gardens under the name of *E. codonodes*, which is really a synonym. The principal characteristics of the species are its many upright branches, clothed thickly with tiny, dark green leaves, and its innumerable small, white blossoms, which, contrasted with the dainty foliage, forms a charming picture. Mature specimens rise to a considerable height, but smaller examples, 2 to 4 feet high and as much through, are very effective. Planted firmly in sweet, sandy soil, containing a little peat, it grows rapidly, and in three or four years, from cuttings, good-sized plants are formed. For a cool greenhouse, a few specimens, placed in pots in autumn, form an acceptable addition. *W. D.* [For a good figure see our number for February 6, 1904, fig. 41.]

THE WESTERN CATALPA

(*C. cordifolia* alias *C. speciosa*).

MR. BEAN contributes to the *Kew Bulletin* (No. 2, 1897, p. 43), a note on this tree, the timber of which is remarkable for its power of resisting decay in damp places. It is a native of moist, fertile situations in Illinois, Kentucky, and other parts of the United States. Mr. Bean points out the distinctive characters between this species and the common Catalpa, which is of little value as a timber tree, whereas the Western Catalpa is in large demand for railway sleepers, gate-posts, telegraph poles, &c. The tree has so far proved hardy at Kew, but it is not recommended for planting on an extensive scale in Britain owing to its slow growth.

CONIFERS AT DURRIS, ABERDEENSHIRE.

PICEA OMORICA seems to find here a congenial home, but whether it will ever produce a bulk of timber sufficient to warrant its inclusion in our list of timber trees remains to be seen. *Athrotaxis laxifolia* makes a striking specimen tree, and lately has begun to produce fertile seed. I have raised a number of varieties of the Douglas Fir. One of these at present seems as if it might be a cross with some other species, whilst amongst the others there are a number of forms and colours. I have at present over a million of seedlings, and no doubt there will be a plentiful crop of seed-sports amongst them. No other tree with which I am acquainted seems to be endowed with such a tendency to reproduce freaks, and this will no doubt militate against its value as a timber tree. I am convinced that the line of division between the two species *Abies magnifica* and *A. nobilis* is a very thin one. Since having it, I have examined a number of leaves of what I know to be true *nobilis*, and find in all of them the groove from base to point. Taking into consideration the form of the tree, the size of the seed, the difference in cone and in leaf, I am inclined to think "if we hear in the voice of Jacob we also discern the hands of Esau." The foliage, and especially in the older branches, is very much lighter on *magnifica* than in *nobilis*, and I believe if you saw the trees as they grow you would detect a marked contrast in them. *C.*



FIG. 97.—ODONTOGLOSSUM CRISPUM ROSEMARY: FLOWER WHITE, WITH SLIGHT SUFFUSION OF ROSE AND SPOTTED LIP, NATURAL SIZE.

hold of the soil, and are thus better enabled to withstand a spell of drought the following summer. A great mistake was made in years gone by in planting Conifers too closely, but the planter was not entirely to blame, especially when dealing with plants newly introduced, for he was not aware of the dimensions of the adult tree. It is sometimes advisable to plant closely for immediate effect, but the "riders," or super-numeraries, should be removed as soon as crowding is apparent. Retinosporas do not develop into large trees, consequently they are more suited for planting in small or medium-sized pleasure grounds than in large parks. The varieties of Retinosporas are rather numerous, but most of them deserve a place in our gardens, while many are most serviceable for standing on verandahs, unheated conservatories, or in court-

ericoides forms a conical bush, bright green foliage, with a ruddy tint in winter. *R. pisifera* (*Cupressus pisifera*) [A true species.—ED.] forms a pleasing specimen, but it is much smaller than *R. obtusa*, and also of more slender growth. It is a quick-growing species, with long, leathery foliage, the variety *aurea* being similar in growth, but with terminal shoots of a rich golden hue. *R. pisifera filifera*, *R. p. f. aurea*, and *R. p. f. gracilis*, are all low, prostrate-growing shrubs, suitable for planting in quite small gardens. The beautiful *R. plumosa* is a young state of *R. pisifera*, of dwarf habit, and should be included in the smallest collection of Conifers. There are also other forms known as *plumosa argentea* and *p. alba picta*: these both have creamy-white foliage. *R. plumosa aurea* is very ornamental, the foliage

PILLAR PLANTS.

MUCH may be done to add to the interest and beauty of the ordinary shrubbery by the introduction of suitable pillar plants, evergreen, as well as the ordinary deciduous flowering subjects, of which Honeysuckles and Clematis are fair examples. Evergreen climbing plants are most useful during the winter months in adding a variety of colour to an otherwise dull part of the garden.

For instance, a pillar 12 feet high, perfectly clothed with Golden Ivy, cannot fail to be an object of interest at all seasons. As a rule, the ordinary shrubbery is none too interesting, and the main object of many shrubberies is to hide from view some objectionable feature.

Shrubbery borders can be made especially interesting when a due proportion of choice flowering subjects are chosen to accompany the ordinary evergreens, and the inclusion of pillar plants must not be neglected.

Poles for supporting the various pillar plants in narrow borders or small shrubberies should not be less than 12 feet in height and 4 inches in diameter at the base.

In the case of shrubberies on a large scale, the pillars should be in proportion, and a height of 14 feet high, with a diameter of 6 inches at the base, will not be out of place. The poles should be made quite secure, as nothing is more annoying than to see a perfect pillar plant blown down during the summer owing to faulty construction. The kind of pole employed must be considered, and those that are not durable, such as Scotch Fir or Spruce, must be avoided. Poles made from Larch trees are suitable. The pole should be charred and tarred at its base, when it will last a long time before rotting in the ground: the bark should be left intact, in order to add a rustic appearance. With attention in planting and care afterwards in the matters of watering, keeping the plants free from insect pests, and training the shoots, the clothing of the pillar is soon effected. It is surprising what little attention is needed afterwards to keep the pillars in order. I append a select list of suitable subjects for training on pillars, naming first those that are evergreen.

Amongst Ivies, there are several desirable kinds, both golden and variegated; the varieties *dentata* and *atropurpurea* are suitable, and the latter assumes an especially dark hue during the winter months. *Lonicera flexuosa*, *Cotoneaster Simonsii*, *Euonymus radicans* variegata, and *Crataegus pyracantha* are all suitable.

Amongst deciduous plants there is an abundance of choice subjects. Any of the rambling Roses are suitable, and especially so are those of the Wichuraiana section and also the Penzance Briars; the latter are beautiful both in blossom and when covered with their brilliant pips. The large leaved Vines such as *Vitis Thunbergii*, *V. Coignetiae*, *V. purpurea*; *Ampelopsis hederacea*—this in the early autumn gives a touch of colour that is always appreciated; *Jasminum nudiflorum*, with its golden-yellow blossoms in February and onwards; and Honeysuckles in great variety are recommended.

Mention must also be made of the free-flowering Polygonum *Baldschuanicum* and *Pyrus japonica* in its many coloured forms. No list would be complete without it contained Clematis *montana*, a plant highly desirable for effect in early spring; C. *Jackmanii*, blooming in early autumn, and the sweetly perfumed C. *flammula*, flowering in September and onwards. Nor must the C. *coccinea* hybrids, such as *Duchess of Albany* (bright pink), *Grace Darling* (rose-carmine), and Sir Trevor Lawrence with its campanulate bright crimson blossoms, be omitted. The richly coloured and quick-growing *Actinidia arguta* should also be included in a representative collection of pillar plants. E. M.

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Border Carnations for flowering in pots.

Where a batch of these has been wintered in cool frames, and the plants have not already been shifted into 7 or 8-inch pots, let this be done without delay, using a similar compost to that recommended in a previous calendar (see p. 155) for Malmesbury Carnations. Pot firmly, and after making the plants secure to stakes, place them on a bed of ashes in a sheltered position out-of-doors. Though border Carnations are usually grown quite successfully in the open border, it is a good plan to have a batch in pots for greenhouse or conservatory decoration. Especially is this advisable if blooms of extra size and quality are wanted for exhibition, or for testing the newer varieties, or for any other special purpose. By removing them into a house just before the buds are likely to burst, they may be sheltered from the weather, but on no account place them under glass before the plants have reached this stage. Such plants can be much more easily shaded, thus prolonging the blooming period.

Hibiscus.—The warm-house varieties of the *H. rosa-sinensis* type, of which brilliantissimus and the double-flowered miniatus are good examples, are worth growing for their free-blooming qualities, although the flowers are of a fleeting character. If the plants are in pots, they were probably pruned back a few weeks ago, and are now breaking strongly into growth, being therefore in a suitable condition for re-potting or for receiving a rich top-dressing, whichever treatment is deemed to be most called for. These plants succeed well in good loam, but extra good drainage should be provided, as they need large quantities of water when in full growth. They should be syringed twice daily to keep down red spider, to attacks of which they are very liable, especially if allowed to become too dry when growing rapidly. Cuttings of the young shoots, if taken with a small heel, will readily make roots if inserted in sandy soil and placed in the propagating frame in the stove.

Marantas.—Examine these handsome stove plants and divide any that are getting too large for the purpose for which they are required. The smaller plants should be potted on, using soil of a rich and porous description. Let the plants be placed in the warmest part of the stove, and shaded from bright sunshine, syringing them frequently all through the growing season. Amongst the many beautiful varieties, *M. arundinacea* variegata (*Phrynium variegatum*) is generally admired when well grown, and if towards the end of the summer more air and less heat are given these plants, they may then be used with safety for decorative purposes in comparatively cool places.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Heating and ventilation.—The month of April is generally a troublesome period for those who have the management of Orchids; the sudden changes between sunshine, shade, heat, and cold are so numerous, that it is almost impossible to keep the atmosphere of the Orchid houses at anything like a regular temperature, although careful shading and ventilation oftentimes serve to prevent violent fluctuations. The heating apparatus must also be attended to with unusual care. Even in the hottest divisions the water pipes should be kept moderately warm during the middle hours of the day, so that when the sun becomes unexpectedly obscured by heavy clouds, the grower can, by closing the ventilators, avoid any extreme or sudden fall in the temperatures.

Shading.—At this particular time of the year the sun is often so powerful that it is dangerous, especially in a mixed collection, to expose the plants to its full glare, even the foliage of some tender plants being liable to receive injury in a very short space of time. To counteract this, we stipple the glass outside very thinly with a mixture of ordinary flour and water, choosing a fine bright day, so that the

mixture will dry quickly on the glass. The glass is first thoroughly cleansed, and allowed to dry. By adopting this plan, the blinds do not require so much looking after, and there is no need to keep working them up and down at every trifling change in the weather. It is not necessary to let them down nearly so early in the morning, and they may be drawn up again several hours earlier in the afternoon, the plants thus receiving far more natural sun-heat than when the blinds are employed exclusively. The permanent shading also assists the cultivator to preserve a steady degree of heat in the various departments. During the very hot weather experienced last summer we found this shading, in addition to the lattice-wood blinds, very useful for the *Odontoglossum* and intermediate houses.

Temperatures.—Owing to the increase of sun-heat, the atmospheric temperatures during day and night in the various divisions should be considerably raised. In the providing of more heat see that the atmosphere in the houses does not get too dry, otherwise thrips and red spider will quickly appear. Damp well between the pots two or three times each day during bright sunshine, and remember that most of the plants will be greatly benefited by light sprayings overhead. Whether insect pests be present or not, we periodically vaporise the houses with the XL-All compound, and we close the house rather earlier than usual for this purpose. Keep the blinds down if there be sunshine, and obtain a moist atmosphere in the house as the fumes from the compound are more effectual in a damp, than dry atmosphere. Scale insects are also easily kept in check by the same means.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Devon.

Apricot trees are in bloom here, and although 8° and 9° of frost are registered on most nights, the atmosphere is very dry, and no injury has yet been caused to the flowers. The variety Breda was the first to open its flowers, and the tiny embryo fruits now show in plenty; it may be hoped that other varieties will set as good a crop. As soon as the leaves unfold, make a diligent search for the tiny maggot every few days. It is too early to write about disbudding of shoots or thinning of the fruit, but care may be recommended in respect to the roots, which should not be allowed to suffer in the least degree from drought. Snails are often a pest on wall fruit trees, quickly spoiling many tiny fruits. Apply lime at the base of the wall, and search the trees with a lamp at night.

Peach trees being very subject to attacks of aphid, the cultivator should be watchful from the time the blossoms open until quite late into the summer, notwithstanding that the trees were properly washed in winter. Ants are a true guide to the presence of aphid, for they are always busy where this pest abounds. Carefully examine each tree at frequent intervals, and dust a little tobacco powder over leaf and flower wherever this troublesome pest can be seen. In bad cases the powder should be rubbed in with the fingers; this will kill many of them, and the powder can be easily washed off with the syringe when the weather and the state of the trees will allow this to be done.

Hoing, &c.—Although weeds are not so much in evidence as when showery weather prevails, the hoe should not be laid aside entirely. The condition of the ground is improved, and the roots are benefited when the surface soil is kept frequently stirred during drought. Those who, like the present writer, plant out their forced plants of Strawberries should well manure and trench or double-dig the quarter for their reception. If this work has been done already, so much the better. Late Strawberry plants fruited in unheated structures are the best for this purpose, and such plants need not be set out for another month at least, by which time warmer nights may be looked for. We consider we gain quite a year by this method over planting runners, one plant being capable of producing as many fruits as half a dozen runners planted in the August of the same year, but it must be conceded that the latter, when planted on warm, sunny borders, usually ripen their fruit a week or 10 days earlier, which is an important matter to many gardeners.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

Herbaceous perennials.—Where the soil is of a heavy and retentive nature, the present time is suitable for planting new subjects in the mixed borders. The vacant places, which were dug during the winter and left rough, should now be levelled, breaking up the clods before the planting is done.

Spring bedding.—While the spring display is at its best, notes should be taken of the successes and failures, and plans made for next autumn's planting, so that the necessary stocks of plants may be grown, and the correct quantities of bulbs procured. The arrangements will, of course, depend entirely on the personal taste of the owner of the garden. *Retinosporas*, variegated *Hollies*, and many other evergreen shrubs are planted in large beds in the spring garden with good effect, but a more extended use of spring-flowering shrubs might, with advantage, be made, not only in the larger beds, but also in the smaller ones. Shapely bushes, ranging from one to four or five feet in height (or even taller), according to the size and nature of the bed, of such shrubs as the flowering Currant (*Ribes sanguineum*), *Berberis Darwinii*, *Jasminum nudiflorum*, tied up into pillar-form, the double-flowered Peaches, and *Magnolia stellata*, when discreetly associated with the conventional spring bedding plants, would add greatly to the interest of this phase of gardening, and improve the effect by relieving the appearance of flatness which too often prevails.

Violas.—At the first suitable opportunity, these plants should be placed in their flowering quarters. The *Viola* thrives best in a deeply-worked rich soil. Partial shade during the middle of the day is beneficial, and plenty of moisture throughout the season is essential.

Amaryllis Belladonna.—Apply an occasional dose of artificial manure while growth is in progress, because the quality and quantity of the flowers next autumn will depend largely on the character of the growth made this season. As these beautiful bulbous plants are usually grown in borders against walls, copious waterings may be necessary for them if the present dry conditions continue.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Late Vines.—The buds on late Vines are now swelling fast, as the natural growing season has commenced. Test the inside borders at once, and if it is necessary, make a thorough application of tepid water. This watering will be sufficient until after the fruit has set. Keep the house rather close, and maintain a moist atmosphere by damping down the paths and borders twice each day. Admit air when the weather is favourable only, closing the ventilators early in the afternoon or as soon as the atmospheric temperature of the house falls to 78°. The temperature during the night should be at about 50° to 55°. Close the hot-water valves in the morning, opening them again in the evening. Great care must be exercised in the application of artificial heat at this stage, as the roots are not yet active. As soon as the buds are 1 inch long, commence to disbud, leaving one bud only on each spur, taking care to choose the best bud. When disbudding young canes, leave the buds at 18 in. apart on each side of the rod alternately. These will form the permanent spurs.

Newly-planted Vines now swelling their buds will require special attention. If the canes were not cut down at planting time to within 2½ feet of the ground level, all the buds will now have to be removed down to that distance, as to prune the canes at this time would cause them to bleed. A leader must be taken up, and the bare part of the cane can be cut back in winter. As soon as the leading shoot has made a growth 4 or 5 feet in length, pinch out the point, and afterwards let the growth run to the length of the roof.

Early Melons.—Plants which were set out in a house or pit, as previously directed, should ripen their fruit by the 1st of June. A second crop may be ripened in the same house in

September. Keep the temperature in the pit at about 65° or 70° at night. Admit air during favourable weather, closing the ventilators each day whilst the sun-heat is at 90°. Damp the paths frequently in order to keep the atmosphere moist. When watering the plants, use water in a tepid condition. Pinch and rub out the young growths at the base of the plants. Train the Melon plants on the single cordon system. Pinch the laterals at one leaf beyond the fruit. When there are three or four fully-expanded female flowers on a plant, select as many male flowers at mid-day, and, having removed the petals, place the flowers on the female flowers. At such a stage keep the atmosphere of the house much drier than usual. Be careful not to apply too much water at the roots until the fruit is set. Do not wet the plants close to the stem, but leave a space of 6 inches around each, which will help to prevent canker at the neck, but this condition can also be caused by a lack of sufficient bottom heat. As soon as the fruits are about the same size as Plums, thin them out, leaving two or three fruits on each plant. This will be a sufficient crop for single cordons planted at 18 inches apart. Sow seeds for succession.

Orchard house trees in pots or borders are now coming into flower. Keep the house cool, and do not apply fire heat except on frosty nights, just to keep the atmosphere above the freezing point. Pollinate the flowers with the camel's-hair brush at midday. Be careful not to injure the tender parts of the flowers. Always take the pollen from the most forward trees first. Repeat this operation daily until the petals commence to drop, when the young fruit will then be seen to be swelling. Just at that stage Plum trees are almost sure to be attacked with aphids. Fumigate as recommended for Peaches, and use the syringe freely against this pest.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

The sowing of seeds.—The bright, sunny weather and winds that have prevailed recently have had a most beneficial effect on all kinds of soil, particularly on such as were well tilled during autumn and winter. The ground has therefore been in splendid condition for seed-sowing, but if this work has been delayed through any cause, it should now be pushed forward as much as possible. Make further plantings of early and second early Potatoes, and further sowings of Turnips and Turnip-rooted Beet. If seeds of Salsafy, Chicory, and Scorzonera have not already been sown, let this be done without delay, employing shallow drills drawn at 15 inches apart. When the plants are through the soil, they may be thinned out to about 12 inches apart, with the exception of the Salsafy, which may be left at distances of 9 inches. In most soils a liberal application of manure is necessary for these crops, and it should be deeply buried, or forked, and inferior roots will be the result. If, however, such crops can be afforded ground which was cropped with Celery last season, no further manure will be necessary, and under such treatment the yield of roots is generally satisfactory.

Celery and Celeriac.—If an early sowing was made last month, as previously advised, the seedlings will now be ready for pricking off. They should always be kept on the move; never by any chance allow them to get in a starved condition, or to suffer a check in any way. As soon as the plants begin to grow again after this shift, gradually accustom them to receiving more ventilation, that they may be thoroughly hardened, and perfectly fit for removal to their permanent quarters as soon as they are large enough.

Carrots and Turnips.—Early batches that have been raised from seeds sown in frames will now require thinning. Afford them frequent waterings, and gradually admit more air to the frames.

Maize or Sugar Corn.—For raising the earliest batch, sow seeds of the varieties Early Dwarf and Quarantain in a gentle heat. The seedlings should be encouraged to grow freely, and as sturdily as possible, that they may be hardened

and of considerable size for planting out in the open garden at about the end of May, or when danger from frost is past.

Early crops of vegetables, such as Peas, Cauli-flowers, &c., that have been planted out on warm borders, especially if the soil is of a light nature, will require occasional waterings and overhead syringings, but these should be applied sufficiently early in the day to allow the plants to become dry again before night, for recently there have been in this district from 6 to 9 degrees of frost on most nights.

Frames on hot-beds that have been used for forcing Asparagus might now be planted with Lettuce, or with Marrows. If Marrows are planted, they should be covered up with mats at night, for some considerable time to come.

THE APIARY.

By CHLORIS.

Making a start with bees.—The following remarks apply to those who are about to start either in a small way, or with an idea of making it a business when knowledge and experience have been acquired.

What to purchase.—It is a very good time to purchase a skep, because there is very little honey stored, and, therefore, there is less likelihood of the combs breaking down when the colony is removed. A would-be purchaser should secure the advice and assistance of one who can tell him whether the colony is strong enough, and, above all, whether there is a clean bill of health. Unfortunately, many sell bees suffering from "foul brood," sometimes in ignorance, but often wilfully. If the buyer cannot have the aid of a skilled bee-keeper, then he must insist on having a written guarantee, if the seller be a total stranger. Having bought the bees, give them a puff of smoke and wait about two minutes, then overturn and give them another. This will drive the bees down, and then a cheese-cloth may be securely tied over the mouth, and the hive carried home, mouth upwards and with as little jarring as possible. Place the stock on a stand as near as possible to the bar-framed hive which they will occupy, for no person commencing would dream of keeping the bees in skeps.

Variety of bees.—Those commonly kept in this country are the English black, or German brown bee as it is sometimes termed. They are easily handled, being of even temper, they seal up the honey with beautiful white capping, but their proboscides are not so long as those of some races, therefore many sources of supply are closed to the race. To improve the breed they have been crossed with the yellow-banded Holylands, Syrian, Ligurian or Cyprian, or with the silver-banded Carniolans.

Holylands.—These are very irritable, and are seldom used in this country, or, indeed, in Western Europe.

Syrians are much the same in temper as the Holylands.

Ligurians are Italian bees with three bright, yellow bands round the upper part of the abdomen. These were the first foreign bees imported to this country about the year 1859 or 1860. They have a long tongue, and can easily reach nectar which is beyond the reach of the native bee; they are also very prolific, raising much brood and given to swarming. When extracted honey only is needed they seem to give good results, but when sections are required they are to be avoided, for they fill the cells so full that the cappings look quite watery. They are very difficult to manipulate when crossed with the native bees.

Cyprians were first introduced in Europe and America about 20 years later. They are well known for their keen desire to sting everyone and everything when handled, and, therefore, only the skilled bee-keeper can manage this race.

Carniolans.—These come from the south-west of Austria, and are noted for good tempers, but they are given to excessive swarming. They fill sections splendidly, and, probably, if a judicious selection were made of queens from colonies not given to excessive swarming and crossed with the best of native stocks, they would produce a good race of bees.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APRIL 6.—Soc. Franç d'Hort. de Londres meet. German Gard. Soc. meet.

TUESDAY, APRIL 9.—Devon Daffodil & Spring Fl. Sh. at Plymouth (2 days). Brighton Spring Fl. Sh. (2 days).

WEDNESDAY, APRIL 10.—Liverpool Spring Fl. Sh. (2 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—45°·7°.

ACTUAL TEMPERATURES:

LONDON.—Tuesday, April 2 (6 P.M.): Max. 59°; Min. 47°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Wednesday, April 3 (10 A.M.): Bar., 29·8; Temp., 51°; Weather—Overcast.

PROVINCES.—Tuesday, April 2 (6 P.M.): Max. 49°, Cornwall; Min. 42°, Ireland, N.

SALES FOR THE ENSUING WEEK.

MONDAY.—Herbaceous and Border Plants, Lilies, Roses, Azaleas, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

TUESDAY TO FRIDAY.—The New Hall Hey collection of Orchids at New Hall Hey, Rawtenstall, near Manchester, by Protheroe & Morris, at 1.

WEDNESDAY.—Hardy Plants and Bulbs, Lilies, Palms, Azaleas, Ferns, &c., at 11; 4,000 Roses, also Fruit Trees at 1 and 3, at 67 & 68, Cheapside, E.C., by Protheroe & Morris. Roses, Azaleas, Palms, and Bay Trees, at Steven's Rooms, King Street, Covent Garden, W.C., at 12.30.

FRIDAY.—200 cases Japanese Lilliums received direct; also Gladiolus, Palm Seeds, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 1.

Professor Henslow, as in the case of M. Jourdain and his **Plant Ecology**,* prose, has, as he tells us, been studying, speaking, lecturing, writing on "Ecology" during the whole of his working career without knowing it. Most botanists and practical gardeners have, to a greater or lesser extent, been doing the same thing without being aware of it. Linnæus, to go no further back, frequently drew attention to it, and his "Amœnitates" furnish ample evidence that the relation of plants to their surroundings was by no means overlooked by him and his pupils. Alexander von Humboldt gave a great impetus to the study. In 1827 John Barton published an interesting lecture on the subject—now almost forgotten. Alphonse de Candolle devoted a very large portion of his "Géographie Botanique" to it, Meyen, whose treatise was translated under the auspices of the Roy. Society, Thurmman, Watson, Lecoq all dealt with the subject, and in countless "Floras" it is treated with more or less fulness.

* Introduction to "Plant Ecology," by Rev. Prof. Henslow. Edward Stanford.

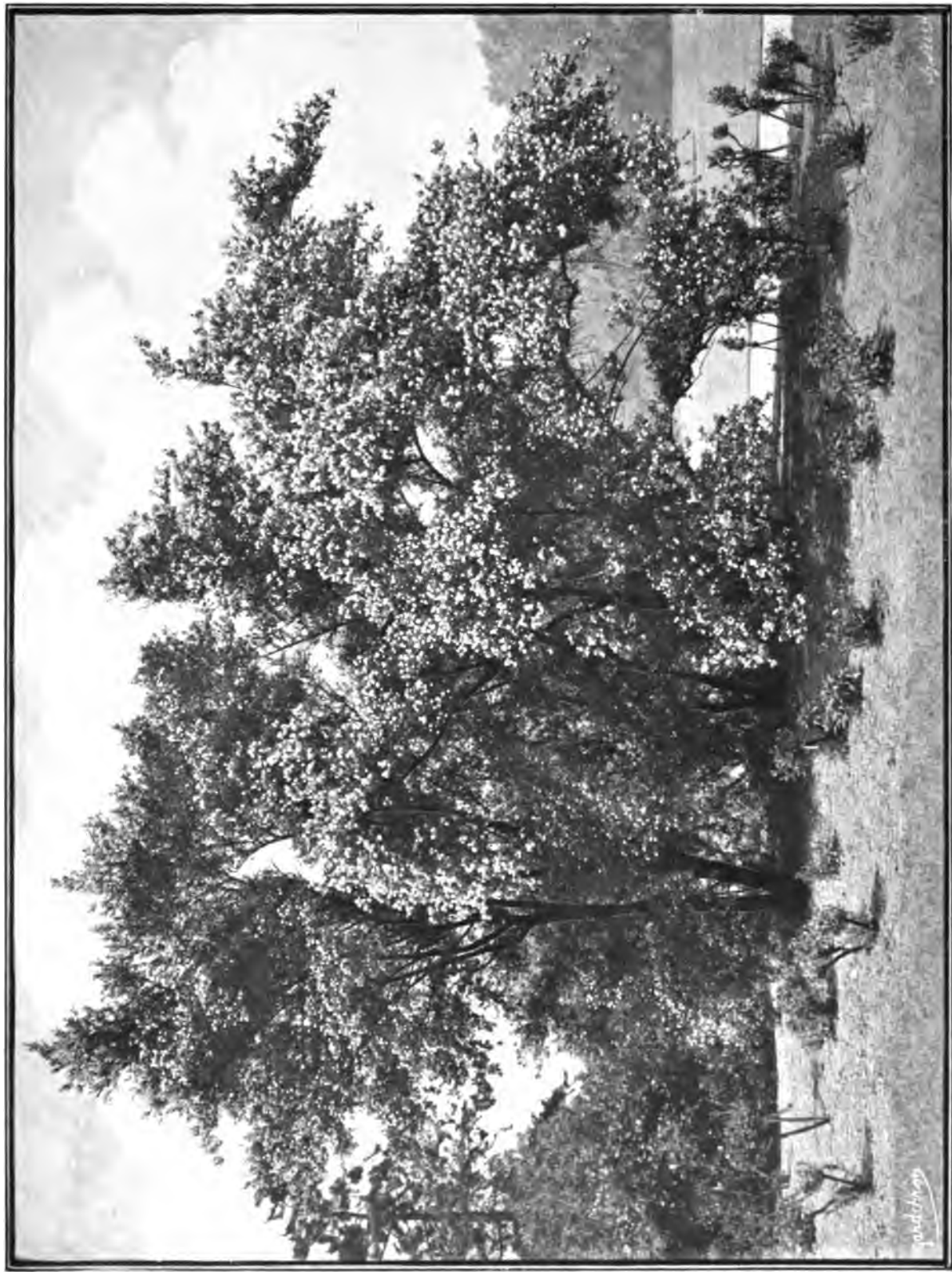
The word, then, only is new; the subject goes back to the time when men began to realise that the vegetation of a salt-marsh was different from that of a mountain moorland, and so on. Gardeners, of necessity, have always had their attention directed to the subject. It is their business to grow plants from all sorts of different localities and habitats as well as they can. As facts have accumulated, a rational grouping of them has become a necessity. Theories have been invented to account for the phenomena that are witnessed, theories worthless if not founded on facts, theories, if based on well co-ordinated facts, most fruitful in furnishing explanations of what is, in revealing what has been and what is to come. And so a new subdivision of botanical science has arisen, to which the name "Ecology" or "Æcology" is now generally given for convenience sake. A new terminology has also sprung up—plants which are found in dry climates are called "xerophytes," moisture-loving species are grouped as "hygrophytes," aquatic plants as "hydrophytes" and so forth. The plants are in outward conformation and inward structure so modified as to be adapted to the conditions in which they are found. The conformation and structure are evidently connected with the conditions under which the plants are placed, and have little to do with their family relationships. A visit to the succulent house at Kew will show Euphorbias, Stapelias, and Cactuses having the same general appearance, though, as shown in their flowers, widely separated in their family descent. Like conditions produce like effects, and so it is that the gardener is often able by the mere cursory inspection of a plant or its roots to determine the system of cultivation that is most appropriate for the plant's needs. It is soon found, however, that plants differ widely as to their power of adapting themselves to circumstances. There is no difficulty in growing Cabbages inland, for instance, though the wild plant grows on Dover cliffs under very widely different circumstances from those which encircle it in a London market garden. In fact, the great majority of plants are "mesophytes," that is, they have a much wider power of adaptation than others, which perish unless they are placed exactly under certain conditions of soil, light, moisture, temperature, or what not. This faculty of adaptation is, of course, the greatest possible boon to the cultivator. His difficulties arise with those "miffy" subjects whose requirements are more exacting and not recognisable on the surface.

Again, it must never be forgotten that plants growing wild in any particular locality do so, not necessarily because that locality is the best suited to their requirements, but because, owing to the competition with more powerful rivals, it is the only available place in which they can grow. And so it often happens that when this rivalry is neutralised and the plant is grown in gardens where enemies and rivals are kept at bay and where every facility is given to the plant to develop itself in its own way without let or hindrance, it manifests a vigour and a development to which it cannot attain under natural conditions. Mr. Henslow sees in all these matters the response of the living plant to varying conditions.

An instance of this kind was brought under our notice two or three years ago by Professor Massart. He was engaged in a minute investigation of the flora of the Belgian sand-dunes, and had instituted many experimental cultures to see what would grow and what would not thrive in that inhospitable district—experiments which had as their object not only the discovery of facts, but of the causes governing those facts. The interest attaching to these cultures was absorbing and destined no doubt to be of great value from a practical point of view. Some indication of their nature was given in our columns on November 19th, 1904, p. 345. Here we need only refer to one very striking illustration which was pointed out to us. The dunes border the sea coast; inland at a distance of not more than half a mile or a mile is the rich, fertile polder-land. Among the dunes and in the polders are numerous pools of water of various sizes, but the inhabitants of these pools, near together as they are, are different. The plants taken from the polder-pools will not grow in the wet places amid the dunes, doubtless owing to some difference in the chemical constitution of the water.

No doubt the author is right in many, perhaps in most, of his conclusions, but there are some difficulties to be overcome yet. Take the case of the Sweet Pea. We all know what that was like ten or twenty years ago. It has leapt into fashion suddenly, and see what has happened: colour, form, size, number of flowers have all been enhanced. Inferior varieties are eliminated, improved varieties are constantly selected, but the conditions remain practically the same, the details of cultivation do not materially differ, there has been no hybridisation, but, at the most, only crossing between varieties. The variation has no obvious or direct relation to the conditions of growth. Here, then, are changes of form which arise independently of any changes of condition. Other instances, especially among bud-sports, might be adduced where the variation occurs, so far as we can see, without any corresponding change of conditions.

Professor Henslow's book is modestly styled "An Introduction to Plant Ecology," but it contains also summary records of his own personal observations in Egypt, Malta, the Cape, as well as at home. In his pages he takes a supposititious pupil into the fields or woods or marshes, and, as it were, induces the pupil to cross-question the plants he meets with. Like Charles Kingsley, he asks the plant what it is, where it came from, what is the meaning and significance of its diversities of structure, what is favouring its growth, what are the obstacles it has to fight against? The search for answers to these and similar questions becomes almost exciting, certainly fascinating. We cannot conceive any more valuable training for a young gardener entering on his career than afforded by the acquisition in this manner of a knowledge of the way in which a plant lives and fulfils its duties. Space will not allow us to follow Mr. Henslow in all his chapters. The reader will possibly not agree with him in all his conclusions, but he will certainly recognise that he has produced a book of great value and suggestiveness to teachers, and one which will show the general reader that botany does not consist merely in col-



CEANOTHUS THYRSIFLORUS IN FLOWER AT KEW.

Photo by E. J. Wallis.

lecting wild plants, giving them barbarous names, arranging them, and preserving them in herbaria, nor are its requirements satisfied by the examination in the laboratory of a few plants by means of scalpel, microscope, stain, or test-tube. All these are valuable aids, but they do not give that wider and deeper insight into the mysteries of plant-life that is afforded by the study of Ecology—the exhaustive investigation of plants in relation to the conditions in which they are living.

OUR SUPPLEMENTARY ILLUSTRATION.—

Whilst there are several of the Californian species of *Ceanothus* which will, in this country, grow 15 to 20 feet high against a wall, *C. thyrsiflorus* is the only one hardy enough to reach that height in the open garden near London. The species from Eastern North America—*C. americanus*—and its variety *opacus* are hardy enough, but they do not get to be more than 4 or 6 feet in height. The supplementary illustration represents a group of *C. thyrsiflorus* near the Broad Walk at Kew, the plants in which are about 15 feet high. I do not think, writes Mr. W. J. BEAN, it is generally known that there is a *Ceanothus* that is at once as hardy and as tall as this. These plants flower profusely every June. *C. thyrsiflorus* is an evergreen, with ovate leaves averaging $\frac{3}{4}$ inch in length; they vary in size, however, being frequently larger than this, and the various forms differ also in the amount of pubescence on the lower surface. The upper surface is dark green and glossy. The flowers are of a pale shade of blue, small individually like those of all *Ceanothuses*, but borne in such abundance as to make a fine display. They are arranged in a cluster of racemes, terminal and axillary, at the end of the previous year's shoots. Except that this shrub does not transplant well, it is easily cultivated. Any well-drained soil will suit it, and it can be readily propagated by cuttings made when the wood is becoming firm and put in a mild bottom heat. The species, which, as already intimated, varies in regard to its foliage in a wild state, is widely spread in California. It is commonly known as Californian Lilac. In some localities it forms a tree 25 feet high, as, for instance, in Mendocino County, where, according to SARGENT, it is associated with the Redwood and Douglas Fir. It was introduced to Britain in 1837, in which year seeds were sent to the Royal Horticultural Society. Our illustration was taken from a photograph by Mr. E. J. WALLIS.

LINNEAN SOCIETY.—The next general meeting of the society will be held at 8 p.m. on Thursday, April 18, 1907. Papers:—1, Mr. J. C. SHENSTONE, F.L.S., on "The Ecologic Functions of Stolons and Cleistogamous Flowers"; 2, Mr. A. O. WALKER, F.L.S., on "The Ecologic Aspect of Constitutional Variation in Fruit-culture"; 3, Mr. HUGH SCOTT, on "An Aberrant Form of *Coccidae*" (communicated by Mr. J. J. LISTER, F.R.S., F.L.S.); 4, Prof. W. B. BOTTOMLEY, F.L.S., "Some Results of Inoculation of Leguminous Plants." Exhibitions:—1, Dr. GEORGE HENDERSON, F.L.S., Nepal Barley and other cereals cultivated at high altitudes in Tibet; 2, Mr. J. A. WEALE, photographs of sections of woods; 3, Mr. J. SAUNDERS, A.L.S., lantern-slides of "Witches' Brooms."

Kew Bulletin.—The number lately issued (No. 3, 1907) contains interesting accounts of the culture of Ginseng (*Aralia quinquefolia*) in Corea; an enumeration of the plants collected in Labrador by Sir WILLIAM MACGREGOR. One main object of the collection was to ascertain

whether Lichens existed in sufficient quantities to serve as food for the reindeer. Mr. COYTON, who was entrusted with the task of identifying the species, gives a systematic enumeration of the same, from which it appears that the supply of food would be adequate for the reindeer if those animals were introduced into Labrador. Mr. BURKILL contributes an interesting note on the vegetation of Sikkim. A note is added on the use of certain fungi as decorative plants, among which are mentioned the candle-snuff fungus (*Xylaria hypoxylon*), with its jet-black, velvety stem and snow-white lip; the "crimson cup" *Dasyscypha coccinea*. Miss HARVEY HART, of Kew, has succeeded in growing this beautiful fungus from year to year by keeping the branches on which the fungus grows partly buried in moss kept constantly damp.

NATIONAL FRUIT GROWERS' FEDERATION.—A meeting of the council will be held on Monday, April 8, at 2.30 p.m., at the Royal Horticultural Hall, Vincent Square, Westminster.

VICTORIAN ERA FUND.—Among the most useful departments of the Gardeners' Royal Benevolent Institution is the fund just named. It was instituted some years ago for the benefit of subscribers to the institution who may have been unsuccessful candidates for the full benefit of the pension at any election. The total amount granted this year to 22 such candidates amounts to £192 12s. The sums given to individual candidates have varied from £1 16s. to £12, according to the duration of life-membership or the number of annual subscriptions paid. It may be assumed that all these candidates will eventually be admitted to the full benefits of the institution. In the meantime it is our duty to see that this period of waiting shall be shortened as much as possible. Mr. G. J. INGRAM, 175, Victoria Street, is the secretary. He will gladly say how this desirable result can be attained.

DESTRUCTIVE INSECTS AND PESTS.—The following is the text of a Bill intitled an Act to extend the Destructive Insects Act, 1877, to all Pests destructive to Crops, Trees or Bushes.

"1.—(1) The Board of Agriculture and Fisheries may for the purpose of preventing the introduction into Great Britain of any insect, fungus, or other pest destructive to agricultural or horticultural crops or to trees or bushes, and for preventing the spreading in Great Britain of any such insect, fungus, or other pest, exercise all such powers as may be exercised by the Board in relation to the Colorado beetle under the Destructive Insects Act, 1877; and that Act shall apply accordingly as if in that Act the expression "insect" included all such insects, fungi and other pests, and the expression "crop" included all such crops, trees, and bushes:

Provided that the Board shall not make an order directing the payment of compensation by any local authority for the removal or destruction of any crop or any trees or bushes unless the local authority consent to make the payment.

(2) Section one of the Rules Publication Act, 1893, shall not apply to any order made under the Destructive Insects Act, 1877, or this Act.

(3) This Act shall apply to Ireland with the substitution of the Department of Agriculture and Technical Instruction for Ireland for the Board of Agriculture and Fisheries.

2.—This Act may be cited as the Destructive Insects and Pests Act, 1907, and the Destructive Insects Act, 1877, and this Act may be cited together as the Destructive Insects and Pests Acts, 1877 and 1907."

It will be noted that the Bill proposes to give to the Board of Agriculture power to act in case of need, in the same manner as was enacted in the case of the Colorado beetle. It is well that the Board should have the powers sought for, but we have not much confidence in the discretion of local authorities in such matters.

THE SWANLEY HORTICULTURAL COLLEGE.—

This institution, which has for some time past admitted women students only, forwards an encouraging report of the work of the past year. Some 68 students joined the courses of instruction, and the total number of past pupils engaged now elsewhere in gardening or in teaching gardening is 138. Various awards were won during the year, and, owing to the receipt of generous donations, the college is free from debt, and the governors consider themselves justified in planning certain improvements. It should be mentioned that there is a Colonial branch of the college, in connection with which trained students have been sent to South Africa, Nova Scotia, and Vancouver, and are doing well.

THE BLACK CURRANT MITE.—The Board of Agriculture and Fisheries announce that a new edition of their leaflet on the Black Currant mite has been published, in which information on the treatment of this pest with lime and sulphur has been incorporated. Fruit-growers whose bushes have been attacked with the mite are advised to experiment with this process. Copies of the leaflet may be obtained gratis and post free on application to the Secretary of the Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W. Letters so addressed need not be stamped.

FORESTRY AT THE ROYAL AGRICULTURAL

SHOW.—An interesting feature of the Royal Agricultural Society's forthcoming show, to be held at Lincoln, from June 25 to 29 next, will be the Forestry Exhibition. It has been decided to offer for competition special medals in silver and bronze in 14 different sections, including classes for specimen boards of various sorts of timber, specimens showing the damage done by insect pests, the comparative quality of timber grown on different soils, and the respective ages at which it reaches marketable size, the beneficial effects of pruning when well done, and the injurious effects when badly done. There will also be classes for different descriptions of gates for farm or estate use. In addition to the above, plots of open ground space will be allotted to firms of nurserymen for the exhibition of forest trees and shrubs, and owners of forests and woodlands, and others interested are invited to send specimens for exhibition only. Forms of entry are now ready, and can be obtained on application to the Secretary of the Royal Agricultural Society, at 16, Bedford Square, London, W.C.

COLTSFOOT.—We always welcome the first appearance of this brilliant little flower on the railway banks near London. This year we noticed it for the first time on March 3. In 1900 it was not observed till March 9, but in 1901 we saw it as early as January 21. The farmer does not look upon it with such gratification as the suburban resident. It is generally found on heavy clay land and on gault, which contains much lime. Prof. PERCEVAL, in the *Journal of the Board of Agriculture*, March, 1907, recommends farmers to hoe the plant out when in flower, so as to prevent its seeding, and to continue the work of spudding it out early in the season. The importance of ample draining need not be dwelt upon. In the meantime, we have this year, for the first time, seen the local florists availing themselves of the Coltsfoot as a pot-plant or for use in spring in window boxes. If this practice were generally adopted in our large towns, what is generally regarded as a nuisance might be esteemed as a source of profit. The fact that the flowers close at night, to re-open when the sun shines, adds to their interest. Growers always like to see evidences of life in what they cultivate.

TRANSPLANTING LARGE TREES.—We are informed that the directors of the Old Keuchenberg Botanical Gardens in Frankfurt-on-Main, Germany, having to remove their quarters, have requisitioned the services of Mr. WILLIAM BARRON, of the firm of WILLIAM BARRON & SON (of Derby) to superintend the transplanting of a Yew tree about 300 years old. The tree being about 50 feet high and 40 feet through, with a trunk 8 feet in circumference, necessitating the transport of a block of earth with the roots, about 15 feet square and 8 feet deep, the task is not an easy one, especially as this huge tree has to be taken through the town in an upright position. Amongst other ancient trees successfully transplanted are the celebrated "John Knox" Yew at Finlaystone, near Glasgow, moved by Mr. BARRON's father in 1900, and the "Buckland" Yew near Dover by his grandfather in 1880. The latter tree is over 1,100 years old, and mentioned in *Doomsday Book*.

THE MUSSEL SCALE.—In an article in the *Journal of the Board of Agriculture* for March, Mr. THEOBALD enumerates the principal insect-pests which attacked fruit plantations in 1906. Numerous insects are mentioned, but "by far the worst insect on fruit trees is the mussel scale (*Mytilaspis pomorum*), which has been sent to me no fewer than 50 times during the past summer. It has undoubtedly increased enormously during the last four years, and may be found in all parts of Great Britain. One young tree was seen in Worcestershire in which it was almost impossible to find a piece of the bark, so thickly had the 'scales' encrusted it. Needless to say, the tree was dead. One note has been sent me, saying that Chalcid parasites had materially checked it, but in the majority of specimens sent no signs of these insects could be found. So far, the only treatment seems a heavy spraying with strong paraffin emulsion, or with Mr. SPENCER PICKERING's wash of paraffin with caustic soda in winter, or dilute paraffin emulsion when the eggs are hatching out in June. Mr. COLLINGE wrote to me in June last that he was destroying it in millions with caustic alkali wash. In Kent, and also at Woburn, this was found to have no effect, thus showing how different washes have diverse effects in separate localities."

FARMING FOR LADIES, by EDITH PARK.—The writer has the invaluable recommendation of having practical experience of her subject. She wisely prepares her possible followers for a life of constant toil and uncertain profits. "Few," says the writer, "have worked as hard as I have at farming, but were I to begin life over again I should still do the same, as its pleasures far outweigh its disappointments." Miss PARK treats of the live-stock, not fully of the crops of a farm; even the subject of the garden is despatched with a short paragraph. Her publishers are Messrs. VINTON & Co., 8, Bream's Buildings, Chancery Lane, E.C.

PLANT DISEASES.—A third edition of Mr. MASSEE's *Text Book of Plant Diseases* caused by cryptogamic parasites has been published by Messrs. DUCKWORTH & Co. The third edition does not greatly differ from the second, but, in any case, it is a valuable book, which should be in every garden library. The American Gooseberry-mildew comes under notice, and whilst its dangerous character is not overlooked, it is shown that prompt and decisive action will suffice to check it. The difficulty we see is that whilst some will take all the necessary steps, others, from ignorance or carelessness, will omit to do so, and so the disease may spread. Legislative measures to prevent its introduction from abroad would be futile, and would cause much unnecessary inconvenience.

BANK HOLIDAYS AND SHOW ARRANGEMENTS.—We have often considered that the holding of Royal Horticultural Society's shows on Tuesdays following upon a Bank Holiday must necessarily impose upon exhibitors and the committees a serious amount of inconvenience. Large exhibits have to be prepared for transit, and some are even conveyed to the hall on the day before the show is held, when the time occupied in travelling is very much greater than usual. The matter was discussed at the hall on Tuesday last, and the Floral Committee sent an unanimous recommendation to the Council on the subject.

HARDY HEATHS AT KEW.—The soil of Kew, being of light quality and quite free from calcareous substances, proves to be admirably adapted for many members of the Ericaceous family. The Rhododendron Dell, the Azalea Garden, and, in a less degree, the botanical collection near King William's Temple and the groups in the sunk garden west of the Palm House, have long been popular features of the garden. Several species of Erica itself thrive particularly well, especially those that blossom in the spring. During the past few years advantage has been taken of this fact to plant a few large groups in various parts of the garden. Two more have been added during the winter, one on a portion of the railed-in wild garden near the Berberis Dell, the other on a mound south-west of the Palm House. In the former more than a thousand plants were put out. Erica mediterranea enters largely into the composition of the spring-flowering groups. It is a beautiful Heath, of which several varieties are in cultivation, one—hibernica—being found wild in the West of Ireland. Associated with it are E. lusitanica, E. arborea, E. Veitchii, and E. carnea. It is believed these groups will become permanent and effective features. The plants commence to flower in February and early March, and provide ample breadths of charming colour for three months. All that is done by way of preparation is to trench the ground and add a little peat. This is also found to provide an admirable medium for growing choice, delicate-rooted plants like Stewartia and Styrax; they not only thrive in the soil, but rejoice in the root shelter the undergrowth of Heath affords. *Kew Bulletin*.

THE BOOK OF THE OPEN AIR.—This publication is to consist of 12 parts, and Mr. EDWARD THOMAS, the editor, describes it as being a "delightful and stimulating book for every lover of nature, with coloured pictures by famous nature-artists of the day and (letterpress) by the most famous nature-writers of the day." At any rate the first part contains some very pretty pictures, reproduced from photographs and water-colour drawings, and these are detachable so can be extracted and framed. The letterpress will be appreciated by the public with whom, at present, "nature study" is a popular subject. The book is handsomely printed and got up, and the publishers are Messrs. HODDER & STOUGHTON, London.

CINERARIA.—Messrs. SUTTON showed at a recent meeting of the Royal Horticultural Society a strain of Cinerarias of a remarkable character. Both ray florets and disc florets were strap-shaped, the disc florets much shorter than those of the ray, deep violet in colour and flattish; the ray florets were twice as long, revolute, white, with only the tips violet.

THE LINDLEY MEDAL.—It was announced at the meeting of the Floral Committee of the R.H.S., on Tuesday last, that the council had determined that in future this medal shall be awarded by this committee in cases where it is desirable to express the committee's appreciation of exhibits showing superior cultivation, as was the original intention.

LAW NOTE.

A SECRET COMMISSION.

At the Greenwich County Court on March 28, the plaintiff sued a firm of horticultural builders to recover £5 10s., said to be the amount of secret commission paid by them to his gardener in connection with the building, by defendants, of a greenhouse for the plaintiff, for which he paid them £67. A letter was produced in which the gardener wrote to the firm to the effect that his master was very well pleased with the plans and the price. The letter went on to say that his master would try to get a little discount, but he [the gardener] advised them to stick to their estimate and to tell his employer that it was the lowest possible. Judgment was given for plaintiff.

THE WEATHER IN WEST HERTS.

Week ending March 27.

Warm days and cold nights. All the days of the week were decidedly warm for the time of year, and on the last three of them the temperature in the thermometer screen rose respectively to 80°, 81°, and 82°, which are very high, but not exceptionally high, readings for the latter end of March. On the three coldest nights the exposed thermometer showed from 10° to 11° of frost. Consequently, the difference each day between the lowest and highest temperatures, even in the thermometer screen, has been very great. Indeed, on two days the daily range amounted to as much as 38°, which is the highest, with three exceptions, that I have ever recorded here in March. Owing to the cold nights the ground temperatures have not risen as they otherwise would have done, and are now only 1° warmer at 2 feet deep, and 3° warmer at 1 foot deep than is seasonable. No rain fell during the week, and for the last four days only a few drops of rainwater have each day trickled through the two percolation gauges. The duration of bright sunshine was very remarkable, averaging, as it did, 8 hours 10 minutes a day, or more than double the average for the time of year. On three days the sun shone for over nine hours a day. Light airs and calms alone prevailed, and on no day was the direction of the air current from any easterly point of the compass. The mean amount of moisture in the air at 8 o'clock in the afternoon fell short of a seasonable quantity for that hour by as much as 18 per cent. On the other hand, during a thick fog on the morning of the 27th a garden wall at 8 a.m. became invisible at a distance of 10 yards. An Early River's Peach growing on a south wall in my garden came first into blossom on the 22nd, which is one day earlier than its average date in the previous 21 years, but 16 days later than last year. *E. M., Berkhamsted, March 27, 1907.*

Week ending April 3.

Remarkably warm and sunny. The present warm period has now lasted exactly three weeks, but the past week was much the warmest of the three. On five consecutive days the highest temperature in the thermometer screen ranged between 65° and 69°, which is from 14° to 18° higher than is usual at this season. The last two days in March were the warmest I have ever recorded here in that month. On the contrary, the nights were almost all cold, and on the coldest of these the exposed thermometer registered 13° of frost. The range in temperature was again exceptionally large. In fact, on one day the difference between the lowest and highest readings in the thermometer screen amounted to 37°, which is the greatest daily range in March of which I have here any record. Notwithstanding the cold nights, the ground is now 4° warmer at 2 feet deep and 6° warmer at 1 foot deep than is seasonable. After a fortnight of rainless weather there occurred a slight fall of rain during the night of the 2nd inst. No measurable quantity of rainwater has come through either percolation gauge for 10 days. The sun shone on an average for as much as nine hours a day, which is more than twice the average daily record for the time of year. Calms and light airs again prevailed. The mean amount of moisture in the air at 8 o'clock in the afternoon was as much as 19 per cent. less than a seasonable quantity for that hour.

MARCH.

Warm, dry, and exceptionally sunny.—Taken as a whole this was only a moderately warm month. The average day temperatures were, however, exceptionally high, and more especially so during the last fortnight. On the contrary the nights were, as a rule, rather cold. On the two warmest days the temperature in the thermometer screen rose respectively to 67° and 68°, both of which readings are higher than any previously recorded here in March during the last 21 years. On the coldest night the thermometer exposed on the lawn showed 15° of frost, which is rather a high extreme minimum for the month. Only once before has the average daily range in temperature in the thermometer screen been as high, and on one day the difference between the lowest and highest readings amounted to 37°, which is the greatest daily range as yet recorded here in the first spring month. Rain fell on 18 days, to the total depth of 1½ inch, which is 2 inch below the average—making this the driest March for seven years. Snow fell on only one day. The fall on that occasion was very light and melted as soon as it reached the ground. The sun shone on an average for six hours a day, or for 3 hours 20 minutes a day longer than is usual. In the last 21 years there has been only one other March as sunny. The winds varied greatly in strength. On the calmest day the rate of movement was only about half a mile an hour, whereas in the windiest hour the mean velocity was 23 miles. The most noteworthy feature as regards the wind was the almost total absence of easterly winds. In fact, for only 72 hours altogether was the direction any point between north and east. The atmosphere was singularly dry, indeed, at 9 p.m. the average amount of moisture in the air was as much as nine per cent below the March average for that hour.

OUR UNDERGROUND WATER SUPPLY.

With March came to an end the winter half of the present drainage year. The total rainfall for those six months exceeded the average quantity by 1½ inch, which is equivalent to an excess of 29,000 gallons on each acre in this district, whereas at the same time last year there was a deficiency of 16,000 gallons per acre. *E. M., Berkhamsted, April 3, 1907.*

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

JASMINUM PRIMULINUM.—A fine batch of plants of this excellent, yellow, winter-flowering plant is in bloom at Gunnersbury Park, and Mr. Geo. Reynolds, the gardener there, calls attention to its uses as a decorative plant for house or conservatory use when flowers are most needed. The plants are grown both as bushes and standards, and they are said to have bloomed continuously during the whole of the winter. Mr. Reynolds also points out the tendency of the plant under cultivation to become what is called double-flowered, most of the flowers having extra petals, while many are distinctly semi-double. This character seems to add to the durability of the blooms. A full account of the history and cultivation of *Jasminum primulinum* was given in the *Gardeners' Chronicle*, July 21, 1906, p. 44. J. O'B.

OPEN-AIR FLOWERS AT ARD CAIRN, CORK.—This has been a most extraordinary season. In my long experience and observation of bloom, I do not remember one that was so backward. All sorts of Daffodils are a month late. *Prunus pissardii*, which generally flowers after Christmas here, is only now in flower, and the bloom is very scattered on the trees. I remember in 1889 gathering a quantity of the white "Swan's Neck" Daffodil (Bishop Mann) on the 16th of February for the present Countess of Aberdeen, in order that Her Excellency should wear them at one of the late Queen's Drawing-rooms at Buckingham Palace—flowers from the open from the Green Isle. W. Baylor Hartland, Ard Cairn, Cork, March 25, 1907.

CEDAR AT CHILDRICK.—In a review in the *Athenaeum* for March 23, mention is made of "Childrick, where the memory of Dr. Pocock, the first Laudian professor of Arabic, is kept green by a noble Cedar on the Rectory lawn raised by a cone he brought from Lebanon in 1646." It would be interesting to know the dimensions of this Cedar, and what claims to authenticity the above cited statement possesses. Cedrus.

THE APPLE STORE.—I read with interest Mr. Mayne's remarks on this subject on p. 203. I think with him that several of our English grown Apples compare very favourably with the foreign and colonial produce. Blenheim Pippin and Newton Wonder are, to my mind, far superior in flavour to many of the foreign varieties. Coronation is a grand keeping Apple, and gardeners would do well in planting this variety in the orchard. Apples are keeping exceptionally well this season. I have still fine, firm fruits of Blenheim Pippin, Newton Wonder, Bramley's Seedling, Beauty of Kent, Mère de Menage, Lane's Prince Albert, Annie Elizabeth, and a few others. A good fruit room is at all times necessary in order to keep fruit so late. Some gardeners cannot possibly keep their fruit in good condition so long because they have not a suitable store. Ladies and gentlemen who grow Apples largely should always see to it that they provide a good fruit room. Then with careful gathering and handling the fruit will keep well. W. H. Collett, Huntsham Court Gardens. [Mr. Mayne sent us fresh-looking, firm fruits of all the varieties he mentioned.—Ed.]

THE WEATHER IN CORNWALL.—During the month of March we experienced both extremes, having, at one time wild, stormy, unsettled weather; and at another, clear sunshine by day, and one or two degrees of frost at night. Our maximum was 57° Fahr., minimum, 27° Fahr., rain fell on 18 days, the total rainfall being 1.1 inch, which amount is 11 inches lower than that of last year. Everything is very dry and already we have to water established shrubs. If a heavy fall of rain does not occur very shortly, it will be serious for many plants, and especially for Rhododendrons and other surface rooting plants. H. W., Trivance.

THE MAHWA, OR MOHWA, TREE OF INDIA.—Referring to the notes on this tree (*Gardeners' Chronicle*, March 30, p. 207), it may be of some additional interest to state that the fleshy corollas are not unknown in this country. In 1877 a quantity arrived in England for trial, both for feeding pigs and for the purpose of distillation. The flesh of pigs fed upon them was said to be remarkably good, while for distilling purposes they were reported to have yielded as much as 6.16 gallons of proof spirit per cwt., the flavour of which was described as being very similar to that of Irish whiskey, but by careful rectifica-

tion it might be made exceedingly pure and free from flavour. At one time large quantities of the flowers were sent from Bombay to France, chiefly for the distillation of the spirit, but as it was found that this spirit was being used as an adulterant of French brandy, the French Government prohibited their importation. This fact gave rise to the statement that the flowers were originally exported from Bombay to France, where they were distilled, the spirit being put into French bottles, labelled as French brandy, and re-exported to Bombay in the ordinary course of trade as French brandy. This is a case on all fours with the oil from the seeds being expressed in France and contributing to the world's supply of genuine olive oil. John R. Jackson, Claremont, Lympstone, Devon.

PHOTINIA SERRULATA.—In the *Gardeners' Chronicle*, March 17, 1906, p. 173, is a record of a plant which is larger than the one referred to by Mr. Cook, p. 209, although his plant is interesting seeing that it has attained to such a size and in a county which is less favourable to its growth than Cornwall. It would be very interesting to know how the young growths and the flowers have fared this spring, for, starting into growth so early, it is more than likely that they suffered injury. H. W., Trivance.

MAGNOLIAS AT LEONARDSLEE.—*Magnolia Campbellii* is showing for the first time several prominent flower-buds on a tree 15 to 20 feet high. The other *Magnolias* are also promising well, and bid fair to produce a wealth of blossoms during the spring months. The following sorts, with the exception of *M. Campbellii*, all flower well at Leonardslee: *M. hypoleuca*, creamy white. *M. Lennei* x; this is later than many varieties and more frequently escapes the effects of frost. *M. Soulangiana* x is a very pretty early flowering variety, and is a little later in flowering than *M. conspicua*. The variety *M. S. nigra* has darker flowers than the type. *M. stellata* is liable to be cut by frost on account of flowering very early. *M. conspicua* should receive protection, especially in cold districts, where it should be grown on a wall, and be protected by a blind, as in the case of fruit trees on walls. *M. Fraseri* also needs a sheltered position; it has sweet scented flowers, which are not showy, but the plant has very handsome foliage. *M. glauca* (the Swamp Bay or Laurel *Magnolia*) has a season of flowering extending over several months; it is a fine shrub for a damp position. *M. parviflora*; this species is rather tender. *M. Norbertii* is very free in growth. *M. Watsonii* requires shelter from cold winds. *M. tripetala*, a sheltered spot or a wind screen; it does not flower until July and August. *Magnolia grandiflora*, an evergreen species; succeeds best on a wall with a warm aspect. This tree should be pruned annually, cutting away all the weaker or non-flowering growths, for if this be not done, the tree is apt to become thick and too feeble in growth to produce flowers of the best quality. *Magnolia kobus*, of which *M. gracilis* is a synonym, has white flowers 5 to 6 inches in diameter. *M. Thompsoniana*; is really an improved form of *glauca*. *M. conspicua* (Yulan) var. *Alexandrina*, is an improvement on the old form of this plant. *M. Van Houttei* is often in bloom through nearly the whole of the summer. The present is a suitable time to give a top-dressing of a little good soil and manure to these plants. Remove some of the old soil around the roots with a fork, and then apply the new loam with some well-rotted cow manure, one-year-old leaf-soil, a little soot, and bone meal. If large shrubs or trees are growing in close proximity to the *Magnolias*, see that their roots are kept clear of the *Magnolias*. W. A. Cook, Leonardslee Gardens, March 20.

FRUIT-TREE PRUNING.—Perhaps you will allow me to correct one error in your remarks on the seventh Woburn report. Your reviewer says that "the hard-pruned tree [of Bramley, illustrated on p. 14], though less in size, has much the thicker wood, and would probably be much the best tree in another year's time." This is an excellent illustration of the way in which erroneous conclusions as to the result of pruning have arisen, through allowing ourselves to be guided by impressions, instead of by actual measurements; for, as a matter of fact, the unpruned trees are, judging by the girth of stem, about 13 per cent. thicker in the wood than the hard-

pruned ones, and in other experiments, where the thickening of the branches was matured, the adverse effect of hard pruning amounted to 29 per cent. (5th Rep., p. 114; 7th Rep. p. 18). Possibly, as we have already suggested, the hard-pruned tree may be the better of the two in 10 years' time; but this is speculation. What is fact is, that during the first 15 years of its life it has borne only one-quarter of the crop of its unpruned fellows, and it seems to be falling still more behind as time goes on. Remembering that we are dealing with dwarf trees in cultivated ground, it can scarcely be suggested that the sacrifice of so much money and labour would be justified by the bare possibility of a hard-pruned tree becoming the better one at the age of 25. The varieties selected for the main body of our experiments—Bramley, Cox, Potts, Stirling Castle—differ widely in their habits of growth, and are varieties which are much cultivated. As the cost of illustration precluded depicting them all, we, naturally, selected for the purpose those which differed most widely—Bramley and Stirling Castle. It seems scarcely reasonable to take exception to this. But it is the numerical data, and not the illustrations, which should be studied by those wishing to arrive at the truth, and these data dispose of your reviewer's suggestion that absence of pruning would be more inimical to growth with weak than with strong growers, like Bramley, for the tree-weights given on p. 7 show that it is the two weakest growers—Cox's and Stirling Castle—which show the greatest growth of any under the no-pruning treatment. Ribston Pippin and Margil, suggested by your reviewer, would scarcely be good instances to choose for experiments of general applicability, but, as a matter of fact, they were included in the 117 varieties which were investigated to a more limited extent (p. 117), and they yielded results differing but little from the mean. Your reviewer characterises as a "sweeping statement" which "will hardly be accepted," our remark that, "when there is no pruning, the crops are twice as great as where moderate pruning is adopted, and four times as great as where hard pruning is practised." But there is nothing sweeping about this statement, nor is it one to which acceptance can well be denied, for it simply refers to the results actually obtained at Woburn with certain plots during 12 years. What we wrote was: "The results when set out in this way cannot fail to be very striking, for, when there is no pruning, &c." Spencer Pickering.

—The conclusions on this subject arrived at in the Woburn Experimental Fruit Farm Report are so entirely discordant with those derived from common garden practice that we are led to ask whether the conclusions in question are such as were desired, or really resulted from experiments. All experience, extending over generations of gardeners, and the world over, has shown that to secure good fruit crops pruning is essential. Trees as dense as Holly bushes is an inevitable condition if not pruned or thinned, which, of course, is pruning. Unpruned trees may produce a quantity of fruit, but how worthless! Possibly such trees may be longer lived than are pruned trees, but of what value is the long life of a worthless tree? If experiments on the practice of pruning, in Apples, for instance, are to have value, there should be planted as standards and as bush trees at least six trees of at least a dozen varieties of Apples, some strong growers, some medium, and some of weak growth. Of these trees three of each variety should be annually pruned, as is customary with each class of tree, and three left unpruned over a period of some 10 or 12 years. The real test of merit of each method being found in the fruit produce, and its market value. Could such a trial be carried out at Wisley and under the direction and observation of the Fruit Committee, something very trustworthy could be secured. Possibly many of your readers, men of lifelong experience in fruit-tree culture and pruning, may ask [in regard to such a trial] whether, in the face of that experience, the game is worth the candle, and with much justice. The fruit-grower knows that he is planting trees to produce fruit and not merely wood, hence to obtain his object he finds it is absolutely needful to prune and thin tree-heads, and very often even the roots, and he thus secures really grand fruits. A. D.

WITHERING OF PLANE LEAVES.—I noticed last year at many places in different parts of England that the London Plane, *Platanus acerifolia* (often written and spoken of as *Platanus occidentalis*, of which to my knowledge there are no large trees now in England, if, indeed, there ever were any) were invariably attacked by a fungus, which, I believe, is *Gloeosporium nervisequum*, whilst the leaves of the true Oriental Plane growing in the same places were never so attacked. I can find no reference to this distinction in print. Some good observers have supposed the withering of the young shoots of the common Plane to be due to frost and wind, but I believe that the fungus named is the sole cause. If the Oriental Plane is immune, as it seems to be, the fact points to a physiological difference between the two forms; but the origin of the London Plane is, so far as I am aware, unknown. I shall be glad if readers of the *Gardeners' Chronicle* will notice and report to me in the coming spring on this subject. *H. J. Elwes, Colesborne, Glos.*

MISTLETO ON LIME.—When visiting Essex last week I saw mistletoe growing in great luxuriance and abundance on Lime trees, and noticed that these trees had on their branches burr-like swellings, which in some cases assumed an elongate gourd-like form such as I have never observed on Lime elsewhere. It struck me that this might be wholly or partially due to the arrested growth of the branch where the mistletoe had taken root on it, though no mistletoe was now present on many of the branches so malformed. Can any reader throw any light on this? *H. J. Elwes.*

LACHENALIA NELSONI.—I was glad to see on p. 194 in the issue for March 23, the notice of *Lachenalia Nelsoni*, exhibited by Mr. Doig at Vincent Square. This lovely plant ought to be widely grown. When visiting Lord Downes' garden at Dingley, Market Harboro', recently, I saw a magnificent batch in upwards of 30 4½-inch pots. On an average there were 18 spikes of bloom to a pot, and, in addition, six hanging baskets contained about six dozen bulbs in each basket. Associated with well-grown plants of *Coleus thyrsoides*, carrying many fine spikes, they produced a most charming effect, and have been greatly admired. Mr. Clipstone, the head gardener, evidently fully understands the requirements of *Lachenalias*, as he told me his stock has been worked up in five years from only two pots of bulbs. All flower-lovers should obtain a stock of this little gem amongst greenhouse bulbous plants. *W.*

CONDY'S FLUID DOES NOT CONTAIN PERMANGANATE OF POTASH.—A subscriber to your journal has directed our attention to a misstatement respecting "Condy's Fluid," which appears in "Answers to Correspondents," page 196, in your issue dated March 23 last, subject "Palm Leaves Diseased." We have now obtained a copy, and find that permanganate of potash is bracketed with Condy's Fluid, obviously inferring that it is one and the same article. It will be entirely to the point to quote from our correspondent's letter. He says:—"I take it from the advt. [?] that Condy's contains permanganate of potash." Certainly any reader would receive the same impression. Condy's Fluid does not contain any permanganate of potash. The *Lancet* has directed attention to and corrected a similar error, and has reported cases of death caused by permanganate of potash (see enclosed bill). Condy's Fluid being non-poisonous and innocuous is perfectly safe for all the uses for which we recommend it, and our interests are seriously affected by the damaging nature of this erroneous statement. We must therefore request you to correct the error in your next issue, and regret that the information did not reach us in time for the correction to appear in your last week's issue. *For Condy & Mitchell, Ltd., M. Locke.*

SCHEDULES RECEIVED.

CARDIFF AND DISTRICT CHRYSANTHEMUM SOCIETY'S 31st annual exhibition to be held in Park Hall, Cardiff, on Wednesday and Thursday, November 6, 7.

TONBRIDGE GARDENERS' AND AMATEURS' SOCIETY'S 34th annual Chrysanthemum and Fruit show, to be held on Wednesday and Thursday, November 13, 14, 1907, in the Public and Drill Halls, Tonbridge.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

MARCH 19.—*Present:* Dr. M. T. Masters, F.R.S. (in the chair); Messrs. G. Massee, E. M. Holmes, A. Worsley, C. A. Hooper, G. Gordon, A. E. Bowles, J. T. Bennett-Poë, J. Douglas, G. S. Saunders, W. C. Worsdell, H. Güssow, and F. J. Chittenden (hon. sec.). Visitors: Messrs. J. Burtt-Davy and B. James, of British Guiana.

Diseased Violets.—Mr. MASSEE reported that the Violets sent to the last meeting were attacked by the fungus *Phyllosticta violæ*. "This and the disease due to *Cercospora violæ* are indistinguishable in their mode of attack, and can only be identified under the microscope. The primary cause of both diseases is excess of moisture and lack of proper ventilation during cultivation."

Gall on Oak.—Mr. HOLMES showed a gall from the common Oak, which Mr. SAUNDERS reported to be formed by the grubs of one of the Hymenopterous gall flies, probably by *Aphilotrix globuli*, one of the gall flies with alternating generations; these galls would produce *Andricus inflator*, whose grubs would form green globular galls surrounded at their base by the scales of the buds. *Aphilotrix globuli* is the sexual generation.

Curious Swelling on Stem.—THOS. SHARP, Esq., F.R.H.S., of Westbury, Wilts, sent a stem of Sloe (?) having at its upper end a curious knob-like swelling about 3½ inches in length and over 2 inches in diameter, marked very similarly to "bird's-eye Maple." This was evidently formed as the result of a wound, the healing tissue having given rise to a large number of adventitious buds, the small shoots from which had disappeared.

Cotyledon macrantha.—Dr. MASTERS reported that he had examined this plant shown at the last meeting, and found that it had been described and figured some time since, and showed no remarkable deviations from other plants of its genus. The proposal to award it a Botanical Certificate therefore fell through.

Agapetes speciosa.—A remarkable shrub with large red tubular flowers was shown by Mr. J. T. BENNETT-POE, which appeared to be a hitherto undescribed species of *Thibaudia*. Its native home was not known, as the plant had been found by Mr. POE in the greenhouse, and there was no record of its original source. The question of awarding it a Botanical Certificate was deferred until the plant should be named. [This has since been determined to be a new species of *Agapetes*, and a Botanical Certificate was awarded the plant on the ground of novelty and interest at a meeting of this committee held on April 2, a report of which will be printed in our next issue.—ED.]

Malformed Cyclamen.—Mr. WORSDELL reported that he had examined the Cyclamen shown at the last meeting, and had found small adventitious flower buds in the axils of the sepals with their parts greatly aborted. Mr. CHITTENDEN had sent him one showing similarly malformed growths, but in that the adventitious flowers had become well developed, although stamens were missing from some of them and so on. Although the buds were probably really axillary to the sepals, they had become laterally displaced owing to lack of room, so that they stood between the sepals. The whole presented the appearance of a large double flower.

Hybrid Orchid.—Mr. JAMES DOUGLAS showed an interesting hybrid raised by crossing the hybrid *Cymbidium eburneum* × *Lowianum* with *C. eburneum*. The resulting plant had flowers closely approaching *C. eburneum* in appearance and colour, but showing traces of *C. Lowianum*, particularly in the tinting of the column, the suffusion of yellow on the labellum, and the form of the double crest which runs down the labellum.

Asparagus Kale Dying.—Mr. S. T. WRIGHT sent specimens of *Asparagus Kale* from Wisley, which showed, on cutting sections across the stem, lattice-like openings in the woody tissue. These had been destroyed by the attacks of the bacterium, *Pseudomonas campestris*, well known on some parts of the Continent and in America. It is reported that the spores may be carried with the seed and the disease so propagated.

MEETING OF COMMITTEES ON APRIL 2.

APRIL 2.—Although the show on Tuesday last was held immediately after Bank Holiday, there was a good display of exhibits in the Hall. Pæonies, Cinerarias, Hyacinths, forced shrubs, early Daffodils, Carnations, and Orchids had a most brilliant effect. Novelties appeared fewer than usual.

The ORCHID COMMITTEE recommended one First-Class Certificate and four Awards of Merit; the FLORAL COMMITTEE one First-Class Certificate and two Awards of Merit; and the NARCISsus COMMITTEE one Award of Merit.

The FRUIT AND VEGETABLE COMMITTEE found little to do, one or two seedling Apples and a dozen varieties of late-keeping Apples, staged by Mr. W. STRUGNELL, Rood Ashton Gardens, representing all that was brought to their notice.

At the meeting of the FLORAL COMMITTEE, attention was directed to the trouble and inconvenience suffered by exhibitors, members of committees, and others by the holding of a meeting on a day following upon a Bank Holiday, and it was unanimously resolved to urge upon the Council the necessity for avoiding the selection of such a date in the future whenever it is possible to do so.

At the afternoon meeting nearly 50 new Fellows were elected, and Mr. H. J. CHAPMAN exhibited about 100 lantern-slides, prepared from photographs taken by himself, showing Orchid species and their hybrids.

Floral Committee.

Present: W. Marshall, Esq. (chairman), and Messrs. George Nicholson, J. Green, R. Hooper Pearson, W. Howe, C. Blick, George Gordon, H. J. Cutbush, Chas. Dixon, C. E. Pearson, George Paul, W. Cuthbertson, E. H. Jenkins, W. P. Thomson, and Walter Ware.

A fine group of tree Pæonies (*Pæonia Moutan*) was shown by W. JAMES, Esq., West Dean Park, Chichester (gr. Mr. W. H. Smith). The plants were in 8-inch pots, and many of them had three, four, and even five very large flowers, which in some instances were 8 and 10 inches in diameter. In colour the flowers were of delightful shades of red, rose, purple, and white. They were extremely variable in form, being in some instances of quite the florist's type, with broad, rounded segments, but others were of more stellate appearance, and very attractive. The plants were received direct from Japan, and are unnamed. The exhibit was of unusual character, and exhibited first-class cultivation. (Silver-Gilt Flora Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, exhibited a miscellaneous collection of greenhouse flowering plants and Ferns, some good vases of Carnations, an assortment of Acacias, a batch of the graceful *Phoenix Roebelinii* and pretty coloured Cyclamen. (Silver-Gilt Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, made another very brilliant display with bunches of Zonal Pelargoniums, amongst which were interspersed bunches of Violets. One of the best scarlet-coloured Pelargoniums is *The Sirdar*, and a shade darker is *Duke of Bedford*. Mrs. Geo. Cadbury is a fine salmon shade. Adjacent to the Pelargoniums the same firm displayed a batch of the lax flowering or "stellata" Cineraria; the plants were well flowered, and representative of a very desirable strain. (Silver-Gilt Banksian Medal.)

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, showed hardy Ferns in many choice plumose and crested forms, some neat plants of Gardenias, a few Auriculas and Pansies, and a large batch of the dwarf free-flowering Roses *White Pet* and *Mad. N. Levassieur*. As a separate group, Mr. MAY exhibited a semi-circular group of Cinerarias of the large-flowered type known as the giant strain. (Silver Flora Medal.)

Carnations displayed by Messrs. WM. CUTBUSH & SONS, Highgate, London, N., formed a very bright exhibit, popular varieties in the first-class quality being exhibited in excellent taste. Messrs. CUTBUSH also displayed an extensive array of rock-garden plants, with dwarf shrubs suitable for this style of gardening, and many varieties of Tulips in pots. (Silver-Gilt Flora Medal.)

Messrs. JAMES VEITCH & SONS, King's Road, Chelsea, S.W., showed greenhouse Rhododendrons of such choice kinds as *Lady Alice Fitzwilliam* and *Veitchianum*, a dozen large plants

of *Magnolia Soulangeana* (all heavily flowered), forced Lilacs, *Andromeda japonica*, Hydrangeas, and other flowering subjects, intermingled with which were pretty Maples and Ferns. As a table exhibit, the same firm displayed plants of *Azalea indica* that were pyramids of flowers; a fine batch of *Crowea angustifolia*, a group of *Primula kewensis* X, *Rhododendron Earl Gem*, &c. (Silver-Gilt Flora Medal.)

Messrs. R. & G. CUTHBERT, Southgate, London, N., staged Hyacinths in circular batches of self colours, all grown in small 60-size pots, but nevertheless flowering in heavy trusses. The exhibit required almost the whole of two large tables for its accommodation. Gertrude (pink), King of Blues, and Schotel (pale blue) were among the best noticed. (Silver-Gilt Flora Medal.)

Mr. FRANK CANT, Colchester, showed Roses in boxes and vases, the most conspicuous being the orange-yellow coloured variety named after Lady Roberts. This was shown in really grand form, and other good flowers were Mrs. W. J. Grant and Mrs. Ed. Mawley. (Silver Banksian Medal.)

Mr. W. E. WALLACE, Eaton Bray Nurseries, Dunstable, again displayed the new American-raised Rose Richmond.

Miss DODGE, Guildford (gr. Mr. R. Stoward), showed 17 varieties of Violets that exhibited first-class culture. (Bronze Flora Medal.)

Messrs. RICHARD SMITH & Co., Worcester, showed balloon-trained plants of Clematis in many varieties and a few miscellaneous plants—Hepaticas, Saxifragas, Jasminum, Azalea amœna, Maples, &c.—interspersed among the Clematis. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, staged a large number of Clematis in pots, all well flowered, a number of showy *Rhododendrons*, and several forced flowering shrubs. (Silver Banksian Medal.)

Messrs. PAUL & SON, Cheshunt, Herts, displayed greenhouse varieties of *Rhododendrons* in small, compact, well-flowered specimens, also *Deutzia gracilis*, *Cytisus incarnatus*, and *Wistaria sinensis*. Two good *Rhododendrons* are Duke of York and Helen Paul, the latter a very pale, rose-blush variety. H. M. Arderne, has large flowers of a rose-pink shade.

Mr. GEO. REUTHE, Keston, Kent, brought many interesting hardy flowers and trusses of handsome *Rhododendrons*. The charming little *Calypso borealis*, a terrestrial Orchid, was represented in the group, the specimen having two well-developed flowers. (Silver Banksian Medal.)

The Misses HOPKINS, Barming, Kent, exhibited some good-coloured Primroses, the pretty Daisy Alice, *Anemone Pulsatilla*, and other spring flowers, as well as tubers of *Tropæolum tuberosum*.

Messrs. BARR & SONS, King Street, Covent Garden, staged a group of Alpine and rock-garden plants, with several choice varieties of Daffodils and Hyacinths. *Anemone blanda* was a feature in the exhibit.

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, displayed bowls of Lily-of-the-Valley and bulbous flowers grown in moss-fibre without drainage to the pots.

THE HORTICULTURAL COLLEGE, Swanley, Kent (gr. Mr. Lawson), staged a batch of the yellow-flowered *Primula verticillata*.

Messrs. DOBBIE & Co., Rothesay and Marks Tey, showed Pansies, Violas, and Violets. The Pansies and Violas represented the very best of these old-fashioned flowers, the newest being Nancy Marsh, a variety of the richest colouring—a satiny blue-black, blotched with mauve. The Violets included 20 distinct varieties.

Messrs. JOHN PEED & SON, West Norwood, London, exhibited Alpine plants; and a small exhibit of these miniature plants was displayed by Messrs. J. CHEAL & SONS, Crawley, Sussex.

Several interesting plants were displayed by various exhibitors, the most interesting being a grand specimen in flower of *Doryanthes excelsa* shown by Lord ROTHSCHILD. The inflorescence, reared on a stout peduncle 12 feet or more in height, bore a corymbose head of dark-red flowers, and large green-coloured anthers. (Silver Banksian Medal.) A specimen of the yellow *Calla Elliottiana*, with a spatheous leaf at the back of the ordinary spathe, was shown by W. COBB, Esq., Normanhurst, Horsham (gr. Mr. C. Salter). Blooms of the rare flowering *Magnolia Campbellii* were shown from Sir

EDMUND LODER's rich gardens at Leonardslee (gr. Mr. W. A. Cook), together with a basket of the handsome *Rhododendron Fosterianum*. The *Magnolia* blooms were very large and cup-shaped; the colouring is a suffusion of vinous red on white—a most handsome species. (Silver Banksian Medal.)

FIRST-CLASS CERTIFICATE.

Rhododendron nigro-punctatum.—This is a species from China, having been collected there by Mr. E. H. Wilson. The plants are perfectly hardy, and, growing only a few inches high, are suitable for cultivation on the rockery. The flowers are about $\frac{3}{4}$ -inch in diameter, and they open almost flat. In colour they are a shade of Lilac. The leaves are of oval form, almost, or quite smooth on both surfaces, and not more than $\frac{1}{2}$ -inch in length. Shown by Messrs. JAMES VEITCH & SONS, Ltd.

AWARDS OF MERIT.

Hippeastrum "Vulcan."—This is a self-coloured flower of deepest maroon crimson, with a splendid "sheen" towards the centre. In form the variety is not so regular as some others.

Hippeastrum "Lady Howick."—In this variety we have a flower of the very best form, judged from the florist's point of view. The colour is rose-lake, but it is prettily mottled with white, and a broad white band extends along the centre of each segment. These varieties of *Hippeastrum* are among the choicest. Both were shown by Major HOLFORD, Westonbirt.

Narcissus Committee.

Present: Henry B. May, Esq. (chairman); Miss E. Willmott, and Messrs. J. T. Bennett Pöe, Joseph Jacob, W. F. M. Copeland, S. Eugene Bourne, P. Rudolph Barr, R. W. Wallace, W. T. Ware, P. D. Williams, A. Kingsmill, E. A. Bowles, W. W. Fowler, G. Reuthe, G. W. Leak, R. Sydenham, G. H. Engleheart, E. M. Crossfield, Chas. T. Digby, W. A. Milner, Chas. Dawson, John Pope, W. Poupert, James Walker, Chas. H. Curtis (Hon. Secretary).

Mr. CHAS. DAWSON, Rosemorrnan, Gulval, Penzance, showed the most interesting group of Daffodils; in fact, it may be described as a collection of novelties, and most of them were good things. A prominent plant was Marsh Light, with a fine orange-scarlet corona, and near by was one of pure white named Icicle, with hanging head. Merganser is a notable flower with large white segments and a cream-coloured trumpet. Chiquita has a white perianth and a beautiful sulphur-yellow trumpet. Open Face is of exquisite shape, and has an almost flattened corona of deep yellow, with a green "eye." Horace is a beautiful Poet's Daffodil, very rich in colour in its disc. Then there were Miss Mary, the large King Alfred, Gold-seeker, with perianth and trumpet of the deepest yellow, Phantom, Kittiwake, Sparkler, Pilgrim, Estelle, &c. (Silver Flora Medal.)

Sir JOSSLYN GORE-BOOTH, Bart., Lissadell, Sligo, Ireland, showed a collection of many of the best of the standard varieties of Narcissi, including C. J. Backhouse, one of the finest of the incomparabilis type, Colleen Bawn, Incognita, Golden Bell (with beautiful yellow trumpet), Seagull (of the Leedsii type), M. J. Berkeley, Cernuus, and others of equal merit. (Silver Flora Medal.)

Messrs. POPE & SON, King's Norton, Birmingham, showed a small selection of popular varieties, such as Giant Waverin, King's Norton, Glory of Leiden, Southern Star, &c.

Messrs. CUTBUSH & SONS, Highgate, London, N., displayed a very large number of Tulips in pots.

AWARD OF MERIT.

Homespun.—A flower of exceptionally fine form, approaching the incomparabilis type. The perianth is pale lemon colour, with a deeper coloured cup. Shown by Mr. CHAS. DAWSON, Penzance.

Orchid Committee.

Present: W. Thompson, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), De B. Crawshay, Fred. J. Hanbury, H. Little, H. G. Alexander, W. H. Young, W. H. White, J. Charlesworth, W. Cobb, A. Dye, A. A. McBean, F. M. Ogilvie, W. Boxall, H. J. Chapman, H. Ballantine, H. A. Tracy, and C. J. Lucas.

NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr. Mr. H. J. Chapman), staged a superb group, for which a Silver-Gilt Flora Medal was

awarded, and which contained some very remarkable varieties of *Odontoglossum crispum*. Two new unnamed blotched forms were generally admitted to be in advance of any yet shown in their respective classes. The one inflorescence carried a spike of five flowers, each of perfect form, and so heavily blotched with a peculiar-blended tint of purple, rose, and orange that the margins and some few intersecting lines only showed the silver-white ground colour; the other, with two very large and handsome blooms, was equally finely marked, but the heavy blotching was of a deep claret-purple, the area around the crest in each case being yellow. Among other fine *Odontoglossums* were the beautiful *O. Pescatorei Thompsonianum* (F.C.C., April 23, 1889), and still one of the best spotted *O. Pescatorei*; a very dark *O. Vuylstekei*, good *O. loochristense*, *O. Adrianæ*, &c. A feature in the group was the collection of *Oakwood Phaius*, one of the finest of which is *P. Clive*, which has in its composition three-fourths of *P. tuberosus*, the remaining fourth *P. Sanderianus*. The specimen of *P. Cooksonii*, which secured the Lindley Medal last year, was shown with nineteen spikes. The group also contained a very varied selection of *P. Norman*. Also a fine specimen of the rich magenta-tinted *Dendrobium Sibyl superbum* and other showy kinds.

J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. Whitelegge) was awarded a Silver-Gilt Flora Medal for a very fine group rich in rare varieties of *Cattleya Trianae*, specimens of the white forms which occupied the centre bearing collectively 39 flowers. The best of these were the varieties alba, Fairy Queen, Oberon, Vesta, and Osiris, the last-named having 10 fine blooms. The coloured varieties were also good: the best—C. T. Mooreana—is described under Awards. At the back of the group was *Cymbidium Lowianum* and good examples of the bright yellow *Oncidium concolor*; and in front was a fine selection of *Lycaste Skinneri*, including about 20 flowers of the white form. Of the *Cattleya Schroderæ*, the variety W. Duckham had fine and unusually dark colour.

Messrs. ARMSTRONG & BROWN, Orchardhurst, Tunbridge Wells, secured a Silver-Gilt Flora Medal for a very remarkable group composed entirely of about 150 compact plants of the white *Dendrobium nobile virginale*, all raised from one seed capsule, and now developed into very pretty plants. As a variety for cut flowers it is of great merit.

Messrs. SANDER & SONS, St. Albans and Bruges, were awarded a Silver Flora Medal for a select group, in which noteworthy plants were *Odontoglossum ardentissimum inversum* Butterfly—a finely-formed flower thicker in substance and better in shape than the ordinary form, and of a clear silver-white, with light, purplish-rose blotching; *O. Wilckeanum* J. Gurney Fowler, a grand variety, with finely-formed, well-proportioned flowers about 5 inches across, and of a pale yellow tint, richly blotched with dark chestnut-brown; *Cattleya Schroderæ* Gloire de Bruges, with pale, lavender-tinted sepals and petals, and a fine labellum that in front was of the rich, reddish-violet tint seen in some forms of *C. Percivaliana*; and *C. Trianae* Rex, the labellum of which was of a deep purple colour. The group also contained *Cœlogyne Lawrenceana*, a species introduced by Messrs. Sander from Annam, and which proves to be a fine new plant; *Zygopetalum Gottianum*, with purple sepals and petals, and a violet lip; *Schomburgkia undulata*, *Arpophyllum giganteum*, *Lycaste Skinneri alba*, and some pretty hybrid *Lælio-Cattleyas*.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, received a Silver Flora Medal for an effective group, in which hybrid *Odontoglossums* were prominent. They included varieties of *O. Ossulstonii*, variable in tint, but always beautiful; *O. Rolfeæ*, *O. amabile*, *O. Wilckeanum*, &c. Two forms of *O. Sylvia* (cirrosom X Rolfeæ) were specially interesting as showing the great variation to be had from the same cross. The one had a cream-coloured ground spotted with claret colour; the other a bright yellow ground marked with purple—and how the yellow becomes so pronounced from such parentage is not easy to determine. Other plants noted were the bright scarlet *Sophrœ-Lælia Psyche*, good *Odontoglossum crispum*, a dark *Lælio-Cattleya* Dominiana, *Brasso-Cattleya Digbyano-Mendelii*, *Miltonia Bleuana*, &c.

Messrs. JAS. VEITCH & SONS, King's Road, Chelsea, secured a Silver Banksian Medal for an interesting group, in which was their new hybrid *Cypripedium* Countess of Carnarvon (*villosum giganteum* x *Euryades*), a finely-formed and richly-coloured flower larger than *C. Euryades*, the broad dorsal sepal being rose-purple, with a broad, white margin; also *C. aureum* Hyeaunum and other *Cypripediums*; *Cattleya Schroderae*, *Laelio-Cattleya highburyensis*, *Cattleya Trianae* alba, and, amongst others of its class, a singular hybrid, *Epi-Laelia Eva* (*E. aurantiaca* x *L. cinnabarina*). The plant shown had one narrow-petalled scarlet flower.

Messrs. MOORE, LTD., Rawdon, Leeds, showed a small group of *Dendrobium* nobile varieties; *D. Ainsworthii*, and other *Dendrobiums*, including a plant of the singular *D. Ruckeri*, *Angraecum*, *Leonis*, *Dendrobium Wardianum*, &c. (Silver Banksian Medal.)

Major G. L. HOLFORD, C.I.E., G.V.O., Westonbirt (gr. Mr. H. G. Alexander), sent a cut example of the fine *Dendrobium fimbriatum oculatum*, Westonbirt variety, to which an Award of Merit was given in 1905; and *Laelio-Cattleya Baroness Schroder*, Westonbirt variety (see Awards).

C. J. LUCAS, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed a selection of *Laelio-Cattleya Lawrie* (*L.-C. Warnhamensis* x *C. Lawrenceana*) varying in colour from bronzy-orange to intense rose-purple, the best of which was selected for an Award of Merit.

Baron Sir H. SCHRODER, The Dell, Egham (gr. Mr. Ballantine), showed the fine and brightly-coloured *Odontoglossum Wilckeanum Schroderianum*.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford, showed a brightly-coloured hybrid near to *Odontoglossum Hallio-crispum*. The flower is a bright yellow, blotched with chocolate colour, the lip being white with brown blotches.

The Rev. D. J. STATHER HUNT, Tunbridge Wells (gr. Mr. Baker), showed several plants of *Laelia Statherae* (*purpurata* x *flava*) varying from cream colour to primrose, with purple markings on the lip.

W. WATERS BUTLER, Esq., Southfield, Norfolk Road, Edgbaston, Birmingham, sent a fine example of *Cymbidium insigne* (Sanderi). One spike had 10 flowers, which were all good, although they had been open for a month; also *Odontoglossum Wilckeanum* "King of Spain," a very fine form of bright colour.

Messrs. LINDEN & Co., Brussels, sent two varieties of *Odontoglossum exultans* (*excellens* x *crispum bellatulum*), both good, yellow flowers finely blotched with reddish purple; *O. Joristanum* (*luteo-purpureum regali* x *triumphans*); and a fine *O. crispum* (see Awards).

F. MENTEITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth), showed a small promising plant of *Odontoglossum crispum Fergus*, with flowers of good form and having a considerable part of each segment of a light purplish-rose colour. Also *Cypripedium niveum* Ajax and *Cymbidium eburneo-Lowianum*, Shrubbery variety, with four spikes.

AWARDS.

FIRST-CLASS CERTIFICATE.

Laelio-Cattleya Baroness Schroder, Westonbirt variety (*L. Jongheana* x *C. Trianae*), from Major G. L. HOLFORD, C.I.E., G.V.O. (gr. Mr. H. G. Alexander). A very beautiful flower equal in size to the largest *C. Trianae*, and of fine substance. The sepals and broadly ovate petals are rose-pink, veined with a darker shade of the same colour, the whole surface glistening in the sunlight. The central portion of the lip is deep orange.

AWARD OF MERIT.

Laelio-Cattleya Lawrie (*L.-C. Warnhamensis* x *C. Lawrenceana*), from C. J. LUCAS, Esq. (gr. Mr. Duncan). A very brightly-coloured hybrid, with mauve-purple flowers and a maroon lip.

Odontoglossum Roi d'Angletierre, from Messrs. LINDEN, Brussels. A grand, blotched variety raised from seeds of finely-blotched *O. crispum*. The greater part of the surface of the well-formed flower was marked with large blotches of a light purple colour with an underlying orange shade.

Odontoglossum crispum album, "Orchid Villa" variety, from M. THEODORE PAUWELS MEIRELBEKE, Ghent. A charming variety of fine shape,

and snow-white, with a few orange-yellow blotches on the lip similar in tint to those seen in the variety *Xanthotes*.

Cattleya Trianae Mooreana, from J. BRADSHAW, Esq., The Grange, Southgate. A very handsome and distinct variety, with light, rosy-lilac sepals and petals, the latter bearing a claret-coloured "feather" at the tip. The lip is a deep, ruby-claret colour, with orange at the base. *Cattleya Trianae* is one of the most plentiful in gardens, but the leading fine varieties must always be rare.

THE LECTURE.

Mr. H. J. CHAPMAN, at 3 p.m., delivered a lecture on "Hybrid Orchids and their Parents," the remarks being illustrated by the aid of 100 coloured lantern slides, photographed from nature, and prepared by the lecturer. The lecturer's opening remarks concerned the species of Phaius of the Madagascar section, and he instanced the remarkable influence produced from the intercrossing of these with the Himalayan species. Among the different crosses of *Cypripedium*, perhaps the most interesting are those derived from the influence of the long-lost, but recently-re-discovered *C. Fairrianum*. *C. insigne* Sanderæ, when fertilised by its own pollen, produces itself true to its characteristics, but when crossed with some other kind, reversion takes place and the normal characteristics of the type species are produced. By continuation of inbreeding in this sport, taking a light-coloured offspring on each occasion and crossing it with the original *C. i. Sanderæ*, an albino is produced, in the third generation of inbreeding. White *Cattleyas* were also shown to illustrate reversion. Sometimes hybrid albinos have been produced from the influence of the albino species used in their parentage. Various other genera, including *Dendrobium*, *Odontoglossum*, *Cymbidium*, *Calanthe*, &c., were alluded to, and several slides showing crosses from them displayed on the screen. The advantages of home-raised hybrids from a cultivator's point of view is that owing to their greater vigour they can be kept in cultivation far longer than is found to be the case with imported species.

LINNEAN SOCIETY.

MARCH 21.—Prof. W. A. Herdman, F.R.S., President, in the chair.

Mr. W. Carruthers, F.R.S., F.L.S., exhibited on behalf of Mrs. Helen Ward, of Slough, a series of 19 drawings of Alpine flowers, grouped according to their time of flowering, and intended to illustrate a forthcoming volume.

Mr. J. Burt-Davy, F.L.S., showed 50 lantern-slides illustrative of the tree and bush vegetation of the Transvaal.

Mr. E. A. Newell Arber, F.L.S., then gave a summary of a paper, of which the following is an abstract:—

"On the Origin of Angiosperms." By E. A. Newell Arber, M.A., F.L.S., Trinity College, Cambridge, University Demonstrator in Palaeobotany; and John Parkin, M.A., F.L.S., Trinity College, Cambridge.

In attempting to trace the ancestry of this group, the authors commence by a survey of living Angiosperms with a view to determining which among them present primitive features, and also with the hope of arriving at some hypothesis as to the type of fructification possessed by the earliest members of the group. They dissent emphatically from the view generally held, and especially advocated by Engler, that the most primitive Angiosperms to-day are those with unisexual flowers, and without perianth, e.g., *Piperaleae*, *Pandanaceae*, &c. On the contrary, they urge the acceptance of a strobiloid theory of the Angiospermous fructification on the grounds that it is typically and primitively a diplosporangiate (hermaphrodite) cone with a well-marked perianth, and one in which all the organs were originally numerous, spirally arranged, and hypogynous. It is pointed out that some of these primitive features are still retained among members of the *Magnoliaceae*, *Ranunculaceae*, *Alismaceae*, &c. From such a cone, the authors would derive by reduction the apetalous, unisexual flowers.

The view is expressed that the "motive force," which called the Angiosperms into existence, was a radical change in the method of

pollination. The anemophily of the Mesozoic ancestors was replaced by entomophily (the latter being regarded as the primitive Angiospermous habit), and this resulted in a shifting of the pollen-collecting mechanism from the megaspore itself to the megasporophyll.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 21.—Committee present: Messrs. E. Ashworth (Chairman); Thorp, Sander, Walmsley, Warburton, Williamson, Upjohn, Keeling, Leemann, Shill, Cowan, Cypher, Parker, Ashton, P. Smith.

There was a very good display of plants, and Silver-Gilt Medals were awarded to Messrs. A. WARBURTON, Esq., W. THOMPSON, Esq., and Messrs. J. CYPHER & SONS for meritorious groups. Messrs. CHARLESWORTH & Co., Bradford, were awarded a Silver Medal for a group.

Mr. W. BOLTON also exhibited a display of plants.

First-Class Certificates were awarded *Cattleya* x *Empress Frederick*, shown by Messrs. CHARLESWORTH & Co.; *Odontoglossum* x *Lambeaunum* var. *Franz Masareel*, and *O. L.* var. *augustum*, both from the gardens of A. WARBURTON, Esq.

Awards of Merit were conferred on *Odontoglossum crispum* var. *grandiflorum* and *O. Rolfeae* var. "Empress Marie," shown by W. THOMPSON, Esq.; *O. Warnhamense* var. *Ebor*, *O. amabile* var. *purpurascens*, and *O. Cremona*, all exhibited by Messrs. CHARLESWORTH & Co.; *O. crispum* var. *Orion* and *O. c. Bertie*, both shown by A. WARBURTON, Esq.; *O. c. Arthurianum*, exhibited by Messrs. H. Low & Co.; *Laelio-Cattleya* x *Baroness Schroder*, from Messrs. CYPHER & SONS; and *Odontoglossum* x *Wilckeanum* var. *Urania*, shown by Messrs. J. W. MOORE, Ltd. P.W.

ROYAL BOTANIC.

MARCH 27.—The exhibition held by this society on the above-mentioned date was favoured by spring-like weather, and the attendance of the public was above the average at these shows. The great conservatory was gay with spring bulbous plants, and other seasonable flowers, such as *Clivias*, *Genistas*, *Camellias*, *Callas*, *Rhododendrons*, *Dicentra* (*Dielytra*) *spectabilis*, &c., whilst the gardens outside were bright with patches of *Crocuses*, *Scillas*, and other early-flowering plants. The corridor was filled with exhibits, the society itself contributing freely, and especially interesting was a large group of Economic plants from the collection at the gardens.

A very handsome group of forced flowering trees and shrubs was staged by Messrs. W. CUTBUSH & SONS, Highgate, London, N. The exhibit occupied the whole of the end of the conservatory adjacent to the corridor, and it was staged in excellent taste. A waved border of dwarf plants of *Azalea mollis* in various colours, with a band of *Pteris cretica*, formed a pleasing finish, the main subjects being *Lilacs*, *Viburnums*, *Rhododendrons*, *Spiraeas*, *Ribes*, ornamental Apples and Peaches, *Laburnums*, *Staphylea colchica*, and similar plants. As a separate exhibit the same firm displayed a very large number of *Narcissi* and *Tulips* in pots. (Gold Medal.)

Messrs. R. & G. CUTHBERT, Southgate, London, N., also staged a beautiful group of flowering shrubs and trees, intermingled with Ferns, Maples, and Palms. Bright patches of colours were furnished by plants of *Azaleas* of good culture, and above these were standard plants of *Lilacs*, *Cytisus praecox*, *Laburnums*, *Wistaria*, the dark-coloured *Weigelia Eva Rathke*, *Cerasus J. H. Veitch*, *Pyrus Malus floribunda*, &c. Amongst the *Azaleas* was a magnificent plant of the variety *Dr. Reichenbach*, and another interesting plant shown well was *Wistaria multi-juga*. Many hardy *Ericas* found a place in the front of the display. (Gold Medal.)

E. A. HAMBRO, Esq., Hayes Place, Kent (gr. Mr. Grandfield), staged a very large assortment of early garden flowers, with many Alpine and rockery subjects, similar to the display put up by the same exhibitor at the Horticultural Hall on March 19. *Auriculas*, *Primulas*, *Kalmias*, *Tulips*, *Daffodils*, *Scillas*,

and many others were in flower, and there were also pans of rare and choice Alpines not in bloom. Well-flowered plants of *Rhododendrons præcox* and Countess of Haddington were utilised as a background to the dwarfier subjects. (Gold Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, were awarded a large Silver Medal for a display of bulbous and other spring flowers. The Narcissi were interesting, and the varieties included the famous white (or rather deep cream) Peter Barr, and the newer Mrs. G. H. Barr, with a slender trumpet, pale yellow in the young flowers, but creamy white in those older. Hepaticas, Anemones, Hellebores, Fritillarias, and Scillas were also noticed.

Messrs. JOHN FEED & SON, West Norwood, London, exhibited pans of Alpine and rock-garden plants, of which the interesting *Saxifraga cymbalaria*, *Milla uniflora*, *Narcissus cyclamineus*, and a few others were in flower. (Silver Medal.)

C. DU CHAPPIN, Esq., Cape Colony, sent the succulent plants which figured at the late African Exhibition, and Mr. BAYLOR HARTLAND, Ard Cairn, Co. Cork, showed a new *Daffodil*—Mrs. W. Baylor Hartland—which was given an award. It is a yellow-trumpet variety, somewhat resembling, but scarcely equal to, Lord Nelson.

Messrs. HUGH LOW & Co.'s new Fern, *Nephrolepis Whitmani*, gained a similar distinction.

MARKETS.

COVENT GARDEN, April 3.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Ed.]

Cut Flowers, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
<i>Azalea Fielderi</i> , per dozen bunches ... 2 6-4 0	<i>Mignonette</i> , per doz. bunches ... 3 0-4 0
— <i>mollis</i> , p. bch. ... 0 9-1 0	<i>Narcissus</i> , paper white, per doz. bunches ... 1 0-2 0
<i>Anemones</i> , per doz. bunches ... 3 0-4 0	— <i>gloriosus</i> ... 2 0-3 0
<i>Bouvardia</i> , per doz. bunches ... 4 0-6 0	— <i>poeticus</i> , per dozen bunches ... 2 0-3 0
<i>Calla æthiopica</i> , p. dozen ... 2 0-3 0	— <i>Soleil d'Or</i> , per dozen bunches ... 1 6-2 0
<i>Camellias</i> , white, per dozen ... 1 6-2 0	<i>Odontoglossum crispum</i> , per dozen bunches ... 2 6-3 0
<i>Carnations</i> , per dozen blooms, best American various ... 2 6-5 0	<i>Pancratium</i> , dz. fls. ... 3 0-4 0
— smaller, per doz. bunches ... 12 0-18 0	<i>Pelargonium</i> , show, dz. bchs. ... 6 0-9 0
<i>Cattleyas</i> , per doz. blooms ... 12 0-15 0	— <i>Zonal</i> , double scarlet ... 4 0-6 0
<i>Christmas Roses</i> , doz. blooms ... 0 9-1 0	<i>Primula</i> (double white), dz. bchs. ... 6 0-9 0
<i>Daffodils</i> , dz. bchs. ... 2 0-4 0	<i>Ranunculus</i> , per dozen bunches ... 6 0-9 0
<i>Dendrobiums</i> , per doz. blooms ... 2 0-3 0	<i>Roses</i> , 12 blooms, <i>Niphetos</i> ... 2 0-4 0
<i>Eucharis grandiflora</i> , dz. blms. ... 3 0-5 0	— <i>Bridemaids</i> ... 4 0-6 0
<i>Gardenias</i> , per doz. blooms ... 2 0-3 0	— <i>C. Testout</i> ... 4 0-6 0
<i>Heather</i> , white, pr. doz. bunches ... 3 0-6 0	— <i>General Jacqueminot</i> ... 2 0-4 0
<i>Hyacinth</i> (Roman), p. dz. bunches ... 3 0-5 0	— <i>Kaiserin A. Victoria</i> ... 2 6-4 0
<i>Lilac</i> , white, p. bch. ... 3 0-4 0	— <i>Liberty</i> ... 4 0-6 0
<i>Lilium auratum</i> ... 2 0-3 0	— <i>Mad. Chateaux</i> ... 3 0-5 0
— <i>lancifolium</i> , rubrum and album ... 2 0-2 6	<i>Snowdrops</i> , per doz. bunches ... 1 0-2 0
— <i>longiflorum</i> ... 3 0-4 0	<i>Stephanotis</i> , per dozen trusses ... 4 0-6 0
<i>Lily of the Valley</i> , p. dz. bunches ... 6 0-9 0	<i>Tuberoses</i> , per doz. blooms ... 0 4-0 6
— extra quality ... 12 0-18 0	<i>Tulips</i> , doz. bchs. ... 5 0-8 0
<i>Marguerites</i> , white, p. dz. bunches ... 3 0-4 0	— <i>Special varieties</i> ... 12 0-18 0
— yellow, dz. bchs. ... 2 6-8 0	<i>Violets</i> , doz. bchs. ... 1 6-3 0
	— <i>Parma</i> , p. bch. ... 2 0-4 0

Cut Foliage, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
<i>Adiantum cuneatum</i> , per dozen bunches ... 4 0-6 0	<i>Galax leaves</i> , per dozen bunches ... 2 0-2 6
<i>Asparagus plumosus</i> , long trails, per doz. bunch ... 6 0-9 0	<i>Hardy foliage</i> (various), per dozen bunches ... 8 0-9 0
— medium, bunch ... 1 6-2 0	<i>Ivy-leaves</i> , bronze ... 2 0-2 6
— <i>Sprengeri</i> ... 0 6-1 0	— long trails per bundle ... 1 6-8 0
<i>Berberis</i> , per doz. bunches ... 2 0-2 6	— short green, doz. bunches ... 2 0-3 0
<i>Croton leaves</i> , bch. ... 1 0-1 6	<i>Moss</i> , per gross ... 4 0-5 0
<i>Cycas leaves</i> , each ... 1 6-2 0	<i>Myrtle</i> (English), small-leaved, doz. bunches ... 4 0-6 0
<i>Fern</i> , English, per dozen bunches ... 2 0-3 0	— French, dozen bunches ... 1 0-1 6
— French, dozen bunches ... 2 0-4 0	<i>Smilax</i> , p. dz. trails ... 2 0-8 0

Plants in Pots, &c.: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
<i>Acacias</i> , per dozen ... 18 0-30 0	<i>Euonymus</i> , per dz. ... 4 0-9 0
<i>Ampelopsis Veitchii</i> , per dozen ... 6 0-8 0	<i>Ferns</i> , in thumb, per 100 ... 7 0-10 0
<i>Aralia Sieboldii</i> , dz. ... 4 0-6 0	— in small and large 60's ... 16 0-25 0
— larger ... 9 0-13 0	— in 48's, per dz. ... 4 0-10 0
<i>Araucaria excelsa</i> , per dozen ... 12 0-30 0	— in 32's, per dz. ... 10 0-18 0
<i>Aspidistras</i> , green, per dozen ... 18 0-30 0	<i>Ficus elastica</i> , doz. ... 9 0-12 0
— variegated, dz. ... 30 0-42 0	— <i>repens</i> , per doz. ... 4 0-6 0
<i>Asparagus plumosus nanus</i> , doz. ... 9 0-12 0	<i>Gesnerias</i> , per doz. ... 9 0-12 0
— <i>Sprengeri</i> , doz. ... 9 0-12 0	<i>Hydrangeas</i> , Thos. ... 12 0-18 0
— <i>tenius</i> , doz. ... 9 0-12 0	Hogg, per doz. ... 12 0-18 0
<i>Asaleas</i> (India vars.), per doz. ... 24 0-36 0	<i>Kentia</i> <i>Balmorea</i> , per dozen ... 12 0-18 0
— <i>mollis</i> , each ... 8 6-10 0	— <i>Fosteriana</i> , dz. ... 12 0-21 0
<i>Begonia Gloire de Lorraine</i> , p. dz. ... 12 0-18 0	<i>Latania borbonica</i> , per dozen ... 12 0-18 0
— <i>Turnford Hall</i> , per dozen ... 12 0-18 0	<i>Lilacs</i> , each ... 4 0-10 0
<i>Boronia megastigma</i> , per dz. ... 12 0-30 0	<i>Lilium longiflorum</i> , per dz. ... 18 0-30 0
<i>Callas</i> , per doz. ... 9 0-12 0	— <i>lancifolium</i> , per dozen ... 18 0-24 0
<i>Cinerarias</i> , per dz. ... 5 0-9 0	<i>Lily of the Valley</i> , per dozen ... 18 0-30 0
<i>Clematis</i> , per doz. ... 8 0-9 0	<i>Marguerites</i> , white, per dozen ... 6 0-9 0
— in flower ... 12 0-18 0	<i>Mignonette</i> , p. doz. ... 6 0-9 0
<i>Cocos Weddelliana</i> , per dozen ... 9 0-18 0	<i>Orange trees</i> in fruit, each ... 8 6-5 0
<i>Crotons</i> , per dozen ... 12 0-30 0	<i>Pelargonium</i> , <i>Zonalis</i> , per dz. ... 6 0-8 0
<i>Cyclamen</i> , per dz. ... 9 0-12 0	— show ... 18 0-24 0
<i>Cyperus alternifolius</i> , dozen ... 4 0-5 0	<i>Primulas</i> , per doz. ... 3 0-4 0
— <i>laxus</i> , per doz. ... 4 0-5 0	<i>Rhododendrons</i> , per doz. ... 24 0-36 0
<i>Daffodils</i> , per doz. ... 4 0-8 0	<i>Selaginella</i> , dozen ... 4 0-6 0
<i>Dracenas</i> , per doz. ... 9 0-24 0	<i>Solanum capsicastrum</i> , per doz. ... 8 0-12 0
<i>Erica Cavendishii</i> , per dozen ... 24 0-36 0	<i>Spiræa japonica</i> , per dozen ... 9 0-15 0
— <i>melanthera</i> , dz. ... 9 0-18 0	<i>Stocks</i> (intermediate) per doz. ... 6 0-8 0
— <i>Wilmoreana</i> , per dozen ... 12 0-18 0	
— <i>persoluta alba</i> ... 24 0-30 0	

Fruit: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
<i>Apples</i> , per box, Australian: ... 15 0 —	<i>Grapes</i> , English, <i>Alicante</i> , per lb. ... 2 0-3 6
— <i>New York Pippins</i> ... 15 0 —	— <i>Gros Colmar</i> , per lb. ... 1 9-8 6
— <i>Five Crowns</i> ... 18 0-14 0	— <i>Almerias</i> , per dozen lbs. ... 7 0-10 0
— <i>Cox's Orange Pippins</i> ... 16 0-17 0	<i>Lemons</i> : ... 8 0-14 0
— <i>Nova Scotia</i> , per barrel ... 20 0-21 0	— <i>Messina</i> , case ... 1 0-1 2
— <i>Fallwaters</i> ... 24 0-26 0	<i>Lyches</i> , per box ... 1 0-1 3
— <i>Russets</i> ... 16 0-18 0	<i>Mandarins</i> , box ... 1 0-1 3
— <i>Greenings</i> ... 15 0-16 0	— <i>Palermos</i> , 100's, box ... 4 6-5 0
— <i>Starks</i> ... 15 0-17 0	<i>Nuts</i> , <i>Cobnuts</i> , per doz. lb. ... 5 6-6 0
— <i>Blenheims</i> ... 20 0-21 0	— <i>Almonds</i> , bags 54 0 —
— <i>Canadian</i> , per barrel: ... 45 0 —	— <i>Brazilia</i> , new, per cwt. ... 45 0 —
— <i>Russets</i> ... 26 0-26 0	— <i>Barcelona</i> , per bag ... 32 6 —
— <i>Greenings</i> ... 22 0-25 0	— <i>Coccol nuts</i> , 100 10 6-18 6
— <i>Ben Davis</i> ... 17 0-18 0	— <i>Italian</i> , bags ... 11 0-13 0
— <i>Baldwins</i> ... 20 0-21 0	<i>Oranges</i> , per case: ... 10 0-40 0
— <i>U.S.A.</i> , New-towns, p. barrel ... 25 0-30 0	— <i>Valencia</i> ... 10 0-11 6
— <i>Newtown Pippins</i> , per case ... 12 6-14 0	— <i>Jamaica</i> ... 9 0-10 6
<i>Bananas</i> , bunch: ... 10 0-11 0	— <i>Navels</i> ... 10 0-11 0
— <i>West Indian</i> , red ... 8 0-10 0	— <i>Jaffa</i> ... 10 0-11 0
— <i>No. 2</i> ... 5 0-5 6	— <i>Seville Bitters</i> , 200's, boxes ... 5 0-5 6
— <i>No. 1</i> ... 6 0-7 0	— <i>Palermos</i> , 100's, boxes ... 4 0-5 6
— <i>Extra</i> ... 7 6-9 0	— <i>Murcias</i> , box ... 6 0-7 0
— <i>Giants</i> ... 8 0-12 0	<i>Peaches</i> (Cape) ... 15 0-25 0
— <i>Jamaica</i> ... 4 6-6 0	<i>Pears</i> (Californian), per case ... 10 0-11 0
— <i>Loose</i> , per dz. ... 0 9-1 3	— <i>Cape</i> , box ... 4 0-8 0
<i>Cranberries</i> , p. case ... 8 0-8 6	— small, best ... 4 0-8 0
<i>Custard Apples</i> , p. dozen ... 4 0-6 0	— large, best ... 12 0 —
<i>Dates</i> (Tunis), doz. boxes ... 4 0 —	<i>Pineapples</i> , each ... 2 9-4 6
<i>Grape Fruit</i> , case 11 6-18 6	<i>Plums</i> (Cape), per case ... 3 0-6 0
<i>Grapes</i> (Cape), box ... 9 0-15 0	<i>Strawberries</i> (English), per lb. ... 4 0-8 0
— small boxes ... 4 0-6 0	
— large boxes ... 10 0-18 0	

Vegetables: Average Wholesale Prices.

s.d. s.d.	s.d. s.d.
<i>Artichokes</i> (French), per dozen ... 2 0-2 6	<i>Cauliflowers</i> , p. tally ... 4 0-6 0
— English, ½ bush. ... 0 9-1 0	— per dozen ... 1 6-2 6
— bags ... 8 6 —	<i>Celeriac</i> , per doz. ... 2 0-2 6
<i>Asparagus</i> , <i>Sprue</i> French, bundle ... 9 0-10 0	<i>Celery</i> , p. dz. bdls. ... 6 0-10 0
— <i>Spanish</i> , bdle. ... 2 0 —	<i>Chicory</i> , per lb. ... 0 4-0 6
— <i>French Giant</i> , per bundle ... 20 0-21 0	<i>Chow Chow</i> (Securium edule) dz. ... 3 0 —
— <i>Par's Green</i> , bundle ... 5 0-5 6	<i>Cucumbers</i> , p. doz. ... 3 0-4 0
<i>Beans</i> (French), packet ... 0 9 —	<i>Endive</i> , per dozen ... 1 3-1 9
— <i>Jersey</i> , per lb. ... 0 9-1 0	<i>Horseradish</i> , foreign, dz. bdls. ... 12 0-13 0
— <i>Harcots</i> , pr. bx. ... 1 0 —	<i>Leeks</i> , 12 bundles ... 1 6-2 0
— <i>Madaira</i> , per basket ... 2 0-3 0	<i>Lettuces</i> (French), per dozen ... 1 3-1 6
— <i>Home-grown</i> , per lb. ... 10 0-10 0	— <i>French</i> , Cos, per dozen ... 5 0-6 0
<i>Beetroot</i> , bushel ... 1 0 —	<i>Mint</i> , per dozen bunches ... 2 6-4 0
<i>Broccoli</i> , sprouting, bag ... 2 0-2 6	<i>Mushrooms</i> (house) per lb. ... 0 10-1 0
<i>Brussels Sprouts</i> , per ½ bushel ... 1 6-2 0	— <i>Buttons</i> , per lb. ... 1 0 —
<i>Cabbage Greens</i> , bags ... 2 6-8 0	<i>Mustard and Cress</i> , per dozen pun. ... 1 0-1 6
— red, per dozen ... 2 0 —	<i>Onions</i> (Valencia), case ... 7 0-7 6
<i>Carrots</i> , French pad ... 2 0-2 6	— <i>pickling</i> , per bushel ... 2 0-2 6
— <i>French</i> , bchs., new, per bunch ... 0 9 —	— <i>French</i> , ½ bag ... 2 6 —
— per bag, unwashed ... 2 0 —	— <i>Dutch</i> , bag ... 4 0-4 6
— washed ... 2 6-2 9	— <i>English</i> , bag ... 4 6 —
	<i>Peas</i> (French), per packet ... 0 4-0 6
	— <i>French</i> , per pad ... 3 6-4 6

Vegetables: Average Wholesale Prices (continued).

s.d. s.d.	s.d. s.d.
<i>Parsley</i> , 12 bunches ... 4 0-6 0	<i>Savoy</i> , per mat (holding about 30 to 40) ... 2 6-8 0
— ½ bushel ... 2 0-2 6	<i>Seakale</i> , doz. pts. ... 12 0-14 0
<i>Parsnips</i> , per bush. ... 1 3 —	<i>Spinach</i> (French), per crate ... 2 0-2 6
— per bag ... 2 6 —	<i>Tomatoes</i> :—
<i>Potatoes</i> (French), boxes, per lb. ... 0 8 ½	— <i>Canary</i> , p. bundle ... 9 0-12 0
— <i>Canary</i> , cwt. ... 10 0-12 0	<i>Turnips</i> , bags ... 8 6-4 0
— <i>Algerian</i> , barrels, per cwt. ... 16 0-17 0	— <i>French</i> , bchs., new, per bunch ... 0 8-10
<i>Radishes</i> (French), per dozen ... 1 4-1 6	— washed, cwt. ... 4 0-4 6
<i>Rhubarb</i> (English), per dozen ... 10-1 6	<i>Turnip Tops</i> , bags ... 2 0-2 6
<i>Salsify</i> , per dozen bunches ... 8 6 —	<i>Watercress</i> , per doz. bunches ... 0 4-0 6

REMARKS.—The first consignment of Australian Apples for the season arrived this week, and sold for satisfactory prices. Doubtless these will affect the sale of the Oregon Newtowns, which have been the principal dessert Apple in the market throughout the winter. There has been a good demand for vegetables of the choicer kinds for the Easter season. Cucumbers are now arriving in large quantities, and the finest samples can be bought at 4s. per dozen. Good Denia and Valencia Oranges are very scarce, although there is an abundance of the common ones, which are very cheap. Trade is much quieter this week. P. L., Covent Garden, Wednesday, April 3, 1907.

POTATOS.

Bedfords, 75s. to 90s.; Blacklands, 75s. to 80s.; Lincolns, 80s. to 95s.; Yorks, 80s. to 100s.; Dunbars, 90s. to 120s.; Scotch, 80s. to 90s.; Teneriffe, 10s. to 14s. cwt. Stocks are very diminished in many districts, and arrivals in the market for the past week have been small. Prices all round show an upward tendency. W. J. C. & S., Covent Garden, April 3, 1907.

COVENT GARDEN FLOWER MARKET.

The Easter trade, especially in cut bloom, was fairly satisfactory, but no exceptional prices were made, and even the value of *Lilium longiflorum*, which was expected to be scarce, fell rather than rose on Saturday morning. Callas realised a little more than I anticipated, but there were many unsold at closing time. Roses were down to very low figures, and *Daffodils* made only normal prices. Tulips were abundant, the value of "whites" advanced a little, but though a very large trade was done on Saturday, there was a large surplus of material at closing time. An unusual large number of private buyers were seen, and as few salesmen refuse to serve them it considerably interferes with the ordinary florists' sales. Business in cut flowers this week is very slow, and this morning (Wednesday) very large supplies were left unsold. The recent bright, sunny weather has hastened everything: there is a glut of *Daffodils*, and splendid quality roses are offered at quite nominal prices. Lily of the Valley can be purchased in the streets at 3d. per bunch of 12 spikes, *Liliums*, of which some good *Candidums* are seen, are down to very low prices, *Gardenias* are cheaper, whilst *Azalea Fielderi*, *Camellias*, and other short-stemmed flowers can be had in plenty.

POT PLANTS.

The market is now open every morning for the sale of pot plants, but not many growers are seen on the odd days. Spring flower roots are a leading feature. Pansies are very good, also *Violas*, *Daisies*, *Primroses*, *Polyanthus*, &c. Other hardy subjects are now growing out of their rough winter condition. Hardy shrubs, *Roses*, and *Climbers* of all sorts are well supplied. In flowering plants are now seen some very fine *Azalea mollis* varieties of *A. indica* are also plentiful in all shades of colour, and the plants are quoted at low prices. White *Lilacs* are seen in well-flowered plants, also *Rhododendrons*, *Intermediate Stocks* are to be had in flower. *Mignonette* is very good from several growers. I find the best quality is making 12s. per dozen pots. *Erica Cavendishii* in well-flowered plants is seen, but I think this is not likely to be over plentiful this season. Some very good *Lilium Harrisii* were seen this morning, but the flowers were not exceptionally forward. *Spiræas*, *Cinerarias*, *Marguerites*, and *Zonal Pelargoniums* are all plentiful in well-flowered plants. In foliage plants there is not much variation; *Ferns* are improving in quality, but there are still some with soft fronds. Variegated *Funkias* are very pretty. Summer bedding plants in store boxes are now arriving from many sources; *Marguerites*, *Lobelia*, *Calceolarias*, *Verbenas*, *Fuchsias*, and dwarf *Marigolds* (*Tagetes*) are already seen in flower. A. H., Covent Garden, Wednesday, April 3, 1907.

DEBATING SOCIETIES.

CROYDON & DISTRICT HORTICULTURAL.

Mr. P. F. Bunyard, Kidderminster Road, Croydon, lectured before the members of this society, on Tuesday March 19, the title of his address being "Wild Nature in the Garden." The discourse was well illustrated with lantern views, and as each subject was shown Mr. Bunyard discussed on its merits and demerits, and in many instances described its life history.

WARGRAVE & DISTRICT GARDENERS.

On Wednesday March 20, Mr. W. J. Townsend, gardener to Sir Wm. Farrer, Sandhurst Lodge, delivered a lecture entitled "How to obtain a display of flowers in the open air from February to May," to the members of the above association. The lecturer's remarks were illustrated by a series of lantern slides of views in Sandhurst Lodge Gardens.

REDHILL & REIGATE GARDENERS.—Considerably over one hundred members of the above society were present at the meeting held on Tuesday, March 19, under the chairmanship of Mr. W. P. Boud. Mr. C. J. Salter gave a paper on "The Cultivation of the Chrysanthemum for Exhibition." The lecturer advised inserting the cuttings in December. Early October he considered the best time to house the plants, and they should then be placed in a temperature of about 50° to 52° Fahr. The lecturer gave a list of 24 selected Japanese, and 24 selected incurved varieties for exhibition. A good discussion followed the reading of the paper.

CATALOGUES RECEIVED.

ENGLISH.

S. MORTIMER, Swiss Nursery, Rowledge, Farnham, Surrey—Carnations, Dahlias, &c.
 E. P. DIXON & SONS, Ltd., Hull—Farm Seeds.
 WM. CUTBUSH & SON, Highgate Nurseries, London, N.—Hardy Plants, Dahlias, Roses, Verbenas, &c.
 W. WATSON & SONS, Clontarf Nurseries, Dublin—Garden Plants.
 HUGH LOW & CO., Bush Hill Park, Enfield, Middlesex—Carnations.

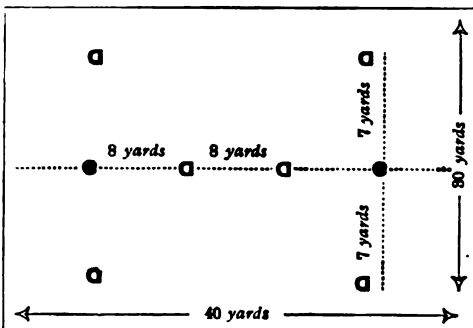
FOREIGN.

C. SPRENGER, Naples-Vomero, Italy—Interesting from its descriptions of new and rare plants.
 J. FRED WUSTENHOF, Sassenheim, Holland—Dutch Bulbs and Flower Roots.
 V. LEMOINE & SON, Nancy, France. Among the new plants are figured a Clematis-hybrid from C. Davidiana, Deutzia Vilmoriniana, Deutzia myriantha. A very interesting catalogue.
 SOUPERT & NOTTING, Luxemburg (Grand Duchy)—Roses.
 PETER LAMBERT, Trier, Germany—New Roses.
 LEVQUE & FILS, Ivry-sur-Seine pres Paris—Novelties in Fruits and Plants.

ANSWERS TO CORRESPONDENTS.

CAMELLIA: N. F. E. As you have not given any particulars as to the conditions in which your plant has been cultivated it is difficult to advise you. Assuming that the plant has suddenly become unhealthy it is probable that the roots have suffered from want of water or from the poverty of the soil, especially under the strain of flowering so freely as you have described. A large Camellia bush in a healthy condition requires copious supplies of water, and if the pot or tub is filled with roots occasional supplies of manure water are also necessary. If, on the contrary, your plant has gradually sickened, we should suppose the roots are dying from being water-logged or from the soil having become sour. Turn the plant out for examination, and if such is the case wash away all the sour soil, cutting away any roots that are found to show decay. For retubbing the plant use a mixture of turfy loam and peat, with plenty of sand and charcoal added. Cut away all unhealthy top-growth and place the plant in a warm plant-house, the better to induce it to make fresh growth.

CROQUET LAWN: A. R. The following is taken from the *Calendar of Garden Operations*, which can be had from our publishing department, price 7d., post free:—"For the purpose of playing the game of Croquet, a well-rolled level grass-plot or lawn not less than thirty yards long by twenty yards wide is required. A full-sized Croquet ground measures forty yards long by thirty yards wide. The following diagram will show what is needed:—



In the line through the centre of the ground, eight yards from the boundary at either end, put the Croquet pegs, and at sixteen yards from either end a hoop. Let the corner hoops be placed in a line with the pegs, and seven yards from the pegs.

CRICKETS: T. A. C. Place some Steiner's beetle paste about their haunts, spreading it on pieces of broken crocks. Crickets may also be trapped in garden mats, rolled and placed on the hot-water pipes.

CYCLAMEN: B. L. The name *C. latifolium* under which the plant was illustrated in the last issue is the correct appellation for *C. persicum*, which is not a native of Persia.

EMPLOYMENT AT KEW: H. D. Write to the Curator, Royal Gardens, Kew, Surrey, for a form of application, which you must fill up and return to him. Candidates must be more than 20 but under 25 years of age, and are required

to show that they have had five years practical gardening experience before entering Kew. The present wages are 21s. per week, sub-foremen receiving 27s. per week.

HYACINTH: H. S. The Hyacinths are gumming, caused by *Bacillus hyacinthi*. There is no known cure. All diseased plants should be burned and the soil in which they have grown should be disinfected with gas-lime.

LAUREL DYING: Mrs. K. The plant is affected with a fungus—*Fumago*. Grub up and burn the diseased plant to prevent the spread of the complaint.

MUSHROOMS: Reigate Mushroom Company. The Mushrooms are attacked by insects belonging to the family Poduridae and the genus Podura. These insects are commonly known by the name of "spring tails" owing to their habit of jumping away when disturbed. They were probably introduced with the spawn from Paris. It is doubtful whether they can be destroyed without destroying the bed. The Mushrooms would all, even the smallest, have to be collected and burnt and the beds soaked with some insecticide as paraffin emulsion, or the extract from 1 lb. of Quassia boiled for two or three hours in water and then diluted to make 10 gallons; or water at a temperature of 125° Fahr., or "Vaporite" might be mixed with the bed, but what effect these would have on the spawn we cannot say. The safest way would be to clear the whole bed out and thoroughly scald the interior of the house with boiling water so as to be certain to kill any of the pests which were left behind. The old bed should be burnt at once.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **FRUITS: A. B.** The large Apple is London Pippin, and the small one should be sent us earlier another season.

PLANTS: F. I. *Ruellia Purdieana*. If you can spare a few cuttings for the Royal Gardens at Kew, they will be much appreciated, as the species is not in cultivation there.—*W. Notts.* Both varieties of *Odontoglossum Adrianae*.—*V. A. R.* 1, *Epidendrum ochraceum*; 2, *Trichopilia laxa*; 3, *Oncidium flexuosum*; 4, *Odontoglossum Lindleyanum*; 5, *Odontoglossum blandum*; 6, *Oncidium sphacelatum*.—*E. C.* 1, *Daphne Laureola* (Spurge Laurel); 2, *Kerria japonica flore pleno*; 3, *Narcissus moschatius*.—*Orchid.* Both *Cattleya Schroderae*.—*G. A. B. & Co.* *Uniola paniculata*.—*A. B.* 3, *Erica hyemalis*.—*H. T. S.* 1, *Acer rubrum* or *dasyacarpum*; we cannot tell which without the leaves. 2, *Lonicera tatarica*. *S. R. A.* We cannot undertake to name varieties of Violets. 6, *Stauntonia latifolia*; 7, *Eriobotrya japonica*; 8, *Lonicera* species.—*N. F. B.* *Kennedya ovata*.

PELARGONIUMS: W. S. The Pelargonium roots are badly attacked by *Rhizoctinia*. The fungus lives in the soil, which should be thoroughly sterilised with gas-lime, as *Rhizoctinia* attacks all kinds of plants.

PLANTS SUITABLE FOR A CORRIDOR: J. H. K. The following plants are suitable for cultivation in a corridor in which the atmospheric temperature is never permitted to fall below 40°: *Fuchsias* in variety, *Daturas* (*Brugmansia*), with single and double white flowers, *Passifloras*, *Tacsonias*, *Begonia radicans* (scarlet), and other species, *Plumbago capensis* (blue), and *P. c. alba*, *Ipomoeas* in variety, *Cestrum* (*Habrothamnus*), *Lapagerias*, White *Jasmines*, *Abutilons*, *Clianthus Dampieri*, *Clematis indivisa lobata*, *Cobaeas*, *Kennedya*, *Trachelospermum* (*Rhynchospermum*) *jasminoides*, *Swinsonias*, *Hibbertia Cunninghamii*, *Psoralea bituminosa*, *Mandevilla suaveolens*, *Thibaudia acuminata*, *Solanum jasminoides*, *Jasminum primulinum* (yellow),

Acacia Riceana, *Sollya heterophylla*, *Bougainvillea* and *Ivy-leaved* and *Zonal Pelargoniums*.

POTATOS: Eigob. The black patches on Potato leaves are not fungoid at all; there is no trace of mycelium and no evidence of Bacteria. It appears to be some purely physiological disease, possibly caused by local conditions which cannot be ascertained from inspection of the leaves alone.

SEWAGE WATER: E. Z. We should not advise the continuous application of the undiluted sewage water to most plants, although it could be used in the case of coarse growing vegetables and Roses. Newly-planted trees and shrubs would be better watered with ordinary water, although they would benefit by applications of the sewage water at intervals, as indeed would most subjects, after they are established. Expose the fluid fully to the air in order that the harmful subjects present may be converted into food available for the plants.

SPANISH IRIS DISEASED: G. W. M. The plants are attacked by a fungoid disease. Dig up and burn the affected plants.

STOPPING OF TREE CARNATION SHOOTS IN ORDER TO HAVE FLOWERS AS EARLY AS NOVEMBER 1: Inquirer. Most cultivators cease to stop the earliest plants at about July 1. An excellent cultivator informs us that for two years past he has not stopped his plants at all until they are established in 5-inch pots and have attained to a height of 8 or 9 inches. Thus treated the plants produce a greater number of strong shoots than previously when stopping was commenced when they were 6 inches in height and growing in 3-inch pots. The strongest shoots are again stopped when they are 4 inches in length, but the earliest plants are not stopped after the last week in June, or at the very latest the first week in July.

VARIETIES OF DOUGLAS FIR: A. E. M., Ireland. (a) No. 1 is a close-growing form approaching *Pseudotsuga Douglasi* var. *brevifolia*, of which it is probably a seedling. No. 2 is typical Douglas Fir. Nos. 3 and 4 are both *P. D.* var. *glauca* (the Colorado Douglas Fir), and, though differing somewhat in general appearance now, it will be difficult to detect any differences between them in two or three years' time. (b) What is the reason of the Douglas Fir remaining practically at a standstill for several years and then either dying or growing away fast? Several reasons have been assigned, but the primary cause is an unbroken subsoil that the roots cannot quickly penetrate. The subsoil may be of clay, gravel, chalk, &c., and the trees will grow satisfactorily until they reach it, but afterwards they become stunted and poor through being starved. If the upper soil is shallow and dry, a dry season may kill the trees, but if they survive until the subsoil has been penetrated the subsequent growth is rapid and strong. The Douglas Fir will not, as a rule, succeed on chalk, but if there is a good depth of soil above the chalk, and the latter is not too deep, the trees will thrive after the calcareous layer has been penetrated by the roots. On land which contains a considerable depth of chalk the Douglas Fir should be planted experimentally at first. (c) How can the Oregon and Colorado varieties be distinguished when in a young state? In the seedling stage it is difficult to give particulars of any distinction between the two, except in colour, the Colorado variety being of a grey or blue tint against the green of the other. When the plants have attained a foot or more in height the leaves of the Colorado variety are stiffer and harsher to the touch, of a pronounced grey to blue colour, and either point forward towards the growing point or curve somewhat. In the Oregon variety the leaves are green, soft to the touch, closely set together and nearly or quite at right angles to the stems. They are also more regularly arranged in the latter than in the former variety.

COMMUNICATIONS RECEIVED.—F. Street (many thanks for 8s., which has been placed in the R. G. O. F. box). G. W. D., Zomba, B. Central Africa—Sir D. Morris, Barbados—A. B. R.—A. H. S., Johannesburg—W. T.—Romeike & Curtice—New England Dahlia Society—W. G. S.—A. Journeyman, A. T. and J. B. are referred to our paragraph in a former issue—H. J. C.—W. E. G.—Mermillon—Lyons—Madm. Fedtschenko, St. Petersburg—Auricula Society, Midland Section—C. H.—J. B.—W. M.—A. F.—H. V.—W. C.—T. S.—J. D. G.—Wood, Cape Town—G. W. H. & Co.—T. W. B.—J. C. F. M. W.—H. W.—J. J. W.—L. G. P.—W. W. P.—R. Sydenham—R. W., Jr.



THE Gardeners' Chronicle

No. 1,059.—SATURDAY, April 13, 1907.

CONTENTS.

American Gooseberry	288	Peaches, the Classifica-	288
Books, notices of—	288	tion of—	288
Beautiful Gardens	289	Plane leaves withering	241
Botanical Magazine	288	Plants, new or note-	
Chrysanthemum Year		worthy—	
Book	289	Agapetes speciosa	280
Icones Selectae Horti		Primroses, hardy	240
Thenensis	281	Pyrus Sorbus, the his-	
Indian Trees	281	tory of—	286
Broccoli, spring—	241	Rosary, the—	
Cape Fruit	289-244	Cultural notes for	
Dahlias in America	288	April	282
Exhibitions at Dresden		Rose Frau Karl Drus-	
and Lyons	288	chki	283
Frost and its effect in		Societies—	
the garden	289	Royal Horticultural	288
Fruit prospects for 1907	241	(Scientific Com-	
Fruit-tree pruning	240	mittee)	241
Gardening in the Col-		Royal Horticultural of	
onies and America	244	Ireland	242
Hailstorms, insurance		Cornwall Daffodil and	
against—	288	Spring Flower	242
Helleborus corsicus	283	Sub-tropical gardening	285
Imposition, an	241	Summer in British Cen-	
Jonquils as pot plants	241	tral Africa	229
Kale, a new hardy	240	Trees and shrubs—	
Market gardening—		Cotoneaster rotundi-	
Tomatos	281	folia	281
Mistletoe on Lime trees	240	Phytolacca serrulata	281
Narcissi, two new	240	Week's work, the—	
Obituary—		Flower garden, the	285
Farmar, Leo	243	Fruits under glass	285
Glass, Neil	243	Hardy fruit garden	284
Wigan, Sir F. W.	243	Kitchen garden, the	284
Orchid notes and glean-		Orchid houses, the	284
ings—		Parks and gardens	285
Dendrobium nobile	280	Plants under glass	284
Odontoglossum mulus	280	Wisley gardens, the labo-	
		ratory at	288

ILLUSTRATIONS.

Agapetes speciosa, a new species	287
Chittenden, F. J., portrait of	288
Helleborus corsicus	283
Kale, hardy Russian	242
Laboratory at Wisley Gardens	288
Narcissus Homespun	240
Narcissus Open Face	241

SUMMER IN BRITISH CENTRAL AFRICA.

IT is one's first Christmastide, 'neath Afric's sky. The rains are general and the sun is but a few degrees from the vertical at noon. The thermometers are registering over 90° Fahr. in the shade, dropping to 75° at night. The temperature in the sun is between 150° and 160°, and the atmosphere close and humid. Spending many hours daily in the open, directing clearing and planting operations by brainless natives, or worse, working in an iron-roofed crematorium-like office, does not tend to improve health or temper.

The rolling plains—only recently one vast blackened mass of vegetation, justifying the phrase, "Darkest Africa"—are now changed as by a wizard's wand: the trees have sprouted in all the vivid colours of early leaves, and are already assuming more sober shades of russet, red and green; and one instinctively longs to go forth and explore nature's display, especially as the eye rests on Mlanje's rugged mountain, nearly 50 miles away across the plains. Early in the morning the lower slopes are hidden by dense banks of cloud, the higher peaks only, rising to nearly 10,000 feet, being visible. As the sun ascends so does the vast bank of cloud, to remain over the range—perhaps enveloping the higher peaks—like a vast fleecy mantle, during the heat of the day.

The usual method of travelling is to be carried

by natives in a hammock. This is an extremely slow mode of progression, especially to one living a year ago on the outskirts of the vast city of motors, tubes, and trams; and it is decided to proceed on a bicycle, the road or path being tolerably good in most places. A start is made at 5.30 a.m., in order to be well on the way ere the sun gets high. The air is fresh and cool, the grass delightfully bedewed: a general mist is spread over the plains, and, momentarily forgetting modern discoveries, which show that mosquitoes and malaria are as cause and effect, we look on it as the "white-death mist," or malarial miasma.

The country through which the road passes is one of countless trees. Leguminous species predominate, and the majority are small trees, rarely more than 30 feet high, or over 1 foot in diameter, never thick enough to shade the ground to a great extent. There are hundreds of *Pterocarpus melliferus*, a noble tree 50 to 80 or even 100 feet high, heavily loaded with Laburnum-like flowers. Cassias of all sizes from the dwarf annual stemmed *C. Tora* to the tall *C. abbreviata* add to the displays of yellow. Extremely beautiful is *Bauhinia Petersiana*, a small tree with broadly bifid leaves, and terminal corymbs of numerous flowers, with linear-lanceolate, fringed petals, which are pure white, and arranged in a spreading manner—in every way a most ornamental subject.

In every patch of damp, shaded soil, cobalt-blue, yellow, and white *Commelinas* are ever ready to cheer the early traveller, and him only, their delicate flowers being withered long before noon. Delightful to the eye are countless *Crinums*, probably *C. subcernuum*, displaying their large delicate pink flowers in marshy soils, but almost intoxicating one with the superabundance of their perfume. Specimens of *Hæmanthus multiflorus*, carrying over 100 crimson flowers in a head, are seen from time to time, and *Hypoxis villosa* spreads its yellow stars everywhere in the grass, whether in the plains or on the mountain. The poisonous *Buphane disticha* has ripened its seeds, and one notes a possible reason for its numerous long-pedicelled flowers being so disposed as to form a perfectly globular umbel. The breeze detaches the dry umbel from its support, and it goes rolling along a bare part of the plain for perhaps 200 yards ere it becomes entangled in a spinous *Acacia*, having meanwhile distributed the bulk of its seed in its path.

Here, under a denser forest growth, the ground is studded with what looks like terrestrial *Cattleyas*. One large purple-red flower turns out to be *Kæmpferia æthiopica*, with single blooms produced close to the ground in advance of the leaves. Another producing several smaller rosy-pink flowers on one stem is *K. rosea*. Most beautiful of all, however, is the allied *Cadalvena* (*Kæmpferia*) *spectabilis*, with enormous golden yellow flowers, suggesting in both shape and size some of the finer large-lipped hybrids obtained from *Brassavola Digbyana* and the larger *Cattleyas*. They are generally produced in twos and threes, contemporaneously with, or subsequent to, the four leaves, which, when developed, lie close along the ground.

Gloriosa superba is very common—its flowers are of every shade from yellow to crimson, according to their age. This plant rarely takes on the climbing, twining habit so familiar to gardeners, its stems being generally only 3 or 4 feet high, and quite erect. Few terrestrial *Orchids* are plentiful enough to make their presence noteworthy: exceptions occur in the case of *Lissochilus Wakefieldii*, with tall spikes of numerous yellow flowers, and *L. arenarius*, with fewer, but larger purple flowers, both species being met with all over the Shire Highlands. The showy *L. Horsfallii*, with purple, pink, and green, and *L.*

Sandersonii, with nearly white flowers, are fairly common.

Wherever a large ant-hill occurs, it is sure to be monopolised by huge, weird, candelabra-like *Euphorbias*. Occasionally a specimen of *Hyphaene crinita* is passed. This tall fan-leaved palm, not unlike *Borassus flabelliformis* in appearance, is, however, much more common away on the brackish shore of Lake Shirwa. Our prevailing palms a species of *Raphia* found in abundance along the banks of most of the smaller streams. It is most graceful, remaining stemless during the greater portion of its life, the numerous pinnate leaves, the mid-ribs of which are bright orange, reaching a height of 30 or more feet. When a trunk develops, the plant produces seeds in abundance, and rapidly decays. The seeds in appearance are not unlike some conifer cones, being covered with glossy, bronzy, extremely hard scales. The mid-ribs of the leaves are very useful, being light, strong, and of fairly uniform girth. They are especially used as rafters for houses, and for making ladders, scaffolding, &c.

A river, large and deep, is reached, which a month ago was waterless: the journey is more than half completed, and a long halt is made for rest and refreshment. The banks are heavily timbered with fine specimens of the valuable African mahogany, *Khaya senegalensis*, *Albizia anthelmintica*, and countless lesser trees and shrubs. *Gardenia Thunbergia*, a tree 15 feet high, is covered with its creamy white, salver-shaped flowers, at least 3 inches in diameter. *Landolphia Kirkii* and *Strophanthus Courmontii* are clambering from tree to tree, both in fruit, the former large, lemon-shaped, containing a quantity of delightfully cooling acid pulp, and the latter displaying its feathery, poisonous seeds, enormous quantities of which, belonging to another species (*S. Kombe*), are annually exported to the drug markets from this Protectorate. *Acacias*, *Cassias*, *Caesalpinias*, and *Mimosas* are striving to gain a footing among the dense vegetation, and the lower sunny branches are smothered with showy *Momordicas*, *Cucumis*, *Lagenarias*, *Luffas*, and other *Cucurbits*, a variety of gay orange *Thunbergias*, and a bewildering variety of *Ipomæas*. High up in the forks of the trees there are clumps of an *Ansellia*, exposed to full sunshine; and much lower a profusion of the mistletoe cactus (*Rhipsalis Cassytha*), the only known Cactaceous plant not confined to the American continent (in an indigenous state); *Opuntias*, now a pest in many tropical countries, having in every known case, been introduced by man. Growing near the river is a fine specimen of *Kigelia pinnata*, the "sausage tree," at present covered with its racemes of large, blackish crimson *Bignoniaceous* flowers, the fruit which succeeds them being shaped like a *Luffa lufa*, but considerably larger: often as thick as a man's thigh.

Farther on, one crosses a marshy swamp that stretches for miles to right and left, dotted with many clumps of a tall, graceful, dark green *Phœnix* sp. (*reclinata*) (?); acres of *Phragmites communis*, now devoid of the snowy plumes; patches of *Cyperus papyrus*; and in deep pools a show of *Nymphaea stellata*, such as no brush or pen could justly describe; innumerable in quantity, in size varying from tiny 3-inch "stars" to huge 12-inch "planets," of every shade of colour from white to pink, and white to deepest azure blue. Many other interesting and showy things are there, but it is impossible to pay any attention to them after once having seen the *Nymphaeas*, and one reluctantly passes on.

At last the only European's house between Zomba and Mlanje is reached, at the base of the mountain. The occupier is a lonely and most hospitable planter, whose nearest neigh-

bour lives 20 miles farther on. His trials are many. The labour supply is getting worse than ever; he has only a few boys and old women to work an estate of 700 acres. Things meteorological were never so badly arranged as this season (they have never been good); during all the rainy season he has not had one dull, showery day to enable him to transplant his coffee, tobacco, &c.; all rain having come at night in 3-inch instalments, followed by days of bright, blazing sunshine. A stroll is taken around the well-laid-out plantation. Cotton is the chief crop, and, owing to being planted early, the occurrence of warm weather, and no lack of rain, American, Egyptian, and Sea Island varieties all look very promising. Coffee is backward, having been badly crippled by the rains ceasing two months earlier than usual last season, followed by a severely dry season. A small plantation of Mauritius hemp (*Furcraea gigantea*) could not possibly be more thriving, and planters in general are beginning to recognise that fibres of this type are a sound investment in British Central Africa. Small areas of sugar cane, Ceara rubber; a well-kept kitchen garden, in which most European vegetables are successfully grown; Oranges, Peaches, Papaws; a magnificent avenue of Lemons over 500 yards long, always in fruit; a very heavy crop of Mangos, and a herd of over 300 high-class cattle are other interesting features. Mention might also be made of two "baby baobabs" (*Adansonia digitata*), only a few years old, yet already "swellin' wisely," and the pride of their owner.

ASCENT OF THE MOUNTAIN.

Starting in the morning, ere the sun is risen, to climb the rugged mountain, one travels along a gradually rising path for two miles, passing through large belts of Bamboo thicket, now delightfully fresh and green. Frequent in these thickets is *Cussonia Kirkii*, a tall shrub or tree, with *Aralia*-like leaves; also large trees of *Erythrina tomentosa*, whose thousands of bright crimson flowers are produced on the leafless trees in the dry season. The path is overgrown, and one has to walk warily to avoid being tripped up by the disagreeable *Mucuna pruriens*. This twining leguminous plant is quaintly pretty when in flower, but later its velvety fruits become covered with short, silky hairs, detachable by the least shaking, and woe unto him who is unfortunate enough to come into contact with it. A painful irritation is set up, and one instinctively flies to the nearest stream for relief. Occasionally one steps on the stems of *Paederia foetida*, whose disagreeable perfume can only be "appreciated" by those who have become acquainted with it in the Kew Palm-house.

Here the path runs alongside a rushing, tearing mounting stream that, rising 3,000 feet above, has torn madly on its downward course, in a series of cascades and cataracts, over erect cliffs and among enormous boulders. Along the banks many *Eucalyptus*-like trees of *Eugenia cordata* are in full bloom, *Dracaena fragrans* and screw Pines are scattered here and there along with the stately *Cyathea zambesiaca*, and luxuriant plants of *Marattia fraxinea*, from 6 to 15 feet in diameter. Now and then one finds, half-hidden behind huge boulders, a fine large *Encephalartos*, that for regularity of outline might almost have been designed and made on geometrical principles. *Osmunda regalis* occurs in every nook of damp, black soil, reminding one of the enormous clumps to be found even now in the wild valleys of North Cornwall. The overhanging banks are profusely clad with various other Ferns including numerous *Aspleniums*, *Nephrolepis cordifolia*, *Adiantums caudatum*, *aethiopicum*, and *lunulatum*, *Gleichenia dichotoma*, *Actinopteris radiata*, &c. Interspersed among these are numerous *Streptocarpus*, including *S. caulescens*, *Cooperii*, and probably *S. Galpinii*, all throwing up plenty of bright blue flowers, the leaves being closely adpressed to the vertical rocks, reminding one of

the position *Ramondia pyrenica* assumes in its favourite haunts. Farther on, some *Vitis* species are at the flowering stage: it will be interesting to determine them later on, and to ascertain their suitability or otherwise, as stocks for grafting with varieties of *V. vinifera*, which, upon their own roots, are not at present a success. A patch of *Orobancha cernua* is remarkable, not only for the size of the spikes of light-blue flowers, but for their number, there being over 100 in a space less than one square yard, the host plant is a species of *Tephrosia*. Showy, large, purple-red *Dissotis* are beginning to flower, and will be found at all elevations for the next six months, the principal species being *eximia*, *incana*, *Johnstonii*, and *Mellerii*. Their flowers closely resemble the closely allied and more familiar *Tibouchinas* of gardens.

Now an almost vertical wall of rock is reached; no path is possible, the only support provided being tussocks of grass collected here and there in the crevices, forming a scanty support for hand and foot. Progress is slow, but one is compensated by the leisure one has for studying the interesting occupants of every crevice, nook and cranny, and by the climate gradually becoming more bracing. Aloes, if poor in variety, are plentiful, the two common species being *A. Buchananii* and *A. abyssinica*, both now out of flower; also flowering specimens of the peculiar *A. cryptopoda*, a species that is here deciduous, the long spotted leaves not unlike those of *A. Cooperii* dropping off in the dry season, when it is impossible to find it, there being no visible stem. *Kalanchoe coccinea* is in full bloom, also *Bryophyllum calycinum*, several species of *Crassula*, and in small pools and rivulets a *Tillæa*, apparently *T. aquatica*. *Selaginella Kraussiana* is once more displaying its delicate traceries; showy *Moschomas*, *Plectranthus*, and *Lobelias* of the deepest blue make bright every accumulation of moist soil. Reminiscent of happy botanising rambles over the chalk downs of Surrey is the frequently-occurring *Scabiosa columbaria*. Gay species of *Coleus*, *Salvia*, and *Senecio*, *Kalanchoe platysepala*, *Gomphocarpus racemosus*, *Habenaria Wellerii*, *Adiantum Capillus-Veneris*, *Gleichenia dichotoma*, *Pellaea consobrina*, dwarf succulent *Euphorbias*, *Asparagus plumosus*, *Drimys robusta*, *Bulbine asphodeloides*, *Ornithogalum Ecklonii*, *Cyrtanthus Welwitschii*, *Urginea altissima*, and many other bulbs have their little nooks to fill. At last the summit of the cliff is reached, and one pauses in a delightful health-giving atmosphere at an elevation of 5,000 feet. *E. W. Davy, Agricultural, Forestry, and Botanical Department, Zomba, British Central Africa.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM MULUS.

A VERY pretty form of this natural hybrid is in bloom in the gardens of Leopold de Rothschild, Esq., Gunnersbury Park (gr. Mr. Geo. Reynolds). The specimen bears two branched spikes of many flowers. The variety was illustrated in the *Gardeners' Chronicle*, January 2, 1886, but it has never been plentiful, as in the case of *O. Andersonianum*, and some others. The form at Gunnersbury Park seems to bear out the suggestion that it is a natural hybrid between *O. gloriosum* and *O. luteo-purpureum*, for it has the odour and the markings on the petals as in *O. gloriosum*, although the broader expansion of the lip and its crest indicate the influence of *O. luteo-purpureum*. The sepals are pale yellow, with from three to four large sepia-brown blotches; the petals are also pale yellow, with reddish-brown markings at the base, and one large irregular sepia-brown blotch in the middle. The lip is white, with a brown blotch in front of the light yellow crest.

The *Odontoglossums* generally are in excellent condition, and some *O. crispum*, *O. Andersonianum*, *O. cirrosum*, *O. Pescatorei*, *O. Coradinei*, a very fine *O. Adrianae*, and others are in bloom, together with a number of good specimens of the best scarlet *Sophranitis grandiflora*, some of them bearing over 20 flowers each. *J. O'B.*

DENDROBIUM NOBILE.

I AM enclosing a photograph [not reproduced—Ed.] of a plant of *Dendrobium nobile* in these gardens, bearing over 200 flowers. It has been grown in the same pot (size 24) for the past 14 years without once having been re-potted, and it is now some 10 years since it was even top-dressed.

During all these years it has been placed in a small lean-to stove, close to the wall. After it has fully developed its growths, water sufficient only to prevent the pseudo-bulbs from shrivelling is given at the roots. I remove the old flowering growths every year after they have finished flowering. I do not know whether the length of time this plant has been grown without re-potting constitutes a record, but it certainly proves that an Orchid can be kept for a great number of years in good health without being pulled to pieces. *H. E. Hatto, Walsingham Gardens, Chislehurst.*

NEW OR NOTEWORTHY PLANTS.

AGAPETES SPECIOSA, HEMSLEY.*

(See fig. 101, p. 237.)

At the meeting of the Royal Horticultural Society on March 19, Mr. Bennett-Poë exhibited a specimen of a very handsome crimson-flowered *Agapetes* from his garden at Cheshunt, where he has had it growing about ten years. Two years ago it flowered, but it was not identified. The specimen was given to Kew for figuring in the *Botanical Magazine*, but as the figure cannot appear for some months, it was held to be desirable to publish the description at once, especially as the plant attracted much attention at the show, and a name was wanted for it. [A Botanical Certificate was awarded to Mr. Poë for this plant at the meeting of the Scientific Committee of the R.H.S. on April 2 on the ground of novelty and interest.]

The native country is unknown, but it is probably from Burma. There is, however, nothing quite like it in the Kew Herbarium. The nearest is a specimen named *A. setigera* var. *Roylei*, by the late C. B. Clarke, but that has leaves with a wedge-shaped base, smaller flowers and oblong calyx-lobes. The flowers are much more like those of the old *A. macrantha* in shape, but deep crimson, and the corolla-lobes are much less recurved, and the leaves differ also in the auricled or subcordate base. The leaves of *A. speciosa* are clustered at the end of each year's shoot, and the flowers are clustered in their axils. *W. Botting Hemsley.*

* *AGAPETES SPECIOSA, Hemsley.*—Species nova, inter affines *A. setigera* var. *Roylei*, C. B. Clarke, proxima, a qua foliis majoribus basi auriculatis, floribus majoribus et calycis lobis deltoideis brevioribus differt. *Fructus* paucipedalis, omnino glaberrimus. *Folia* alterna, pseudoverrucillata, brevissime crasseque petiolata, crassa, coriacea, fere horizontalia, ovato-oblonga, 8-10 cm. longa, 3-5 cm. lata, basi subcordata, bullata, obscure callosodenticulata, denticulis inter se circiter .5 cm. distantibus, supra saturate viridia, subtus pallidiora, utrinque subnitida; costa crassa, subtus elevata; venæ immersæ, inconspicue. *Flores* carnosæ, speciosæ, saturate rubro-sanguineæ, nitidæ, in foliorum axillis fasciculatæ; pedunculi breves, crassissimi, 3-6 flori; pedicelli carnosæ, 2.5-4 cm. longi, bracteis bracteolisque minutis caducissimis. *Calyx* cum pedicello apice incrassato articulatus, persistens, circiter .5 cm. longus; lobi deltoidei, erecti, acuti, quam tubus breviores. *Corolla* tubulata, medio ventricosa, cum lobis 3.5-4 cm. longa, medio 1.5 cm. diametro, conspicue 5-costata; lobi lanceolati, obtusiusculi, erecti vel demum recurvi, circiter 1 cm. longi. *Stamina* 10, inclusa, filamentis brevissimis puberulis; antheræ biloculares, basi calcaratæ, loculis in tubulos elongatos angustissimos conniventes rimis debicentes productis. *Ovarium* 10-loculare, stylo lobulato breviter exserto. *Fructus* mihi ignotus.—*Patria* ignota.

MARKET GARDENING.

TOMATOS.

TOMATO plants under glass, planted in rows from 22 to 24 inches asunder and at 1 foot from plant to plant in the row, should have plenty of fresh air admitted to the structure on all favourable occasions in order to promote a sturdy, short-jointed growth in the plants and the development of flower-trusses on the stems pretty close to the ground. To the Tomato grower—whether under glass or out of doors—who obtains the first truss of flowers close down to the ground on the individual plants, it is a matter of pounds sterling on the right side. The pinching out of all side shoots as soon as they appear on the stems of the several plants is essential in order that the entire strength of the plants shall be concentrated in developing the crop. With this object in view the leaves should be cut back to two leaflets before they become crowded. As soon as the plants have attained to a height of 12 or 15 inches they should be afforded support in the nature of string made from a soft substance and known in the trade by the name of Tomato string. This being tied loosely round the stems of the individual plants close to the ground line and fastened to the wires overhead, or where these are not provided to $\frac{1}{4}$ -inch tin tacks driven into the sides of the rafters at from 13 to 15 inches apart, according to the angle of the roof; twining the single-stemmed plants round the strings as they increase in upward growth is all that is required in this direction. The soil in which the plants are growing must be kept uniformly moist, and should a surface-dressing with half-rotted manure be laid on between the rows to the thickness of between 1 and 2 inches it will add considerably to the weight and quality of the crop. This mulch, however, should not be laid on until the plants have set a couple of trusses of fruit each, otherwise the effect would probably be the opposite of that desired. *H. W. Ward.*

TREES AND SHRUBS.

COTONEASTER ROTUNDIFOLIA.

By far the most effective species of Cotoneaster throughout winter in the Royal Gardens at Kew is this species, for while the berries of other species are taken by birds very soon after they ripen, the fruit of *C. rotundifolia* is left alone until well on into the late winter months. Why birds refuse this for so long a period is a mystery, but the same thing occurs each year. Like many of the most ornamental Cotoneasters, this is an Himalayan shrub, and thrives almost anywhere in this country. It grows to a height of 4 or 5 feet, and furnishes itself well, but never becomes such a dense thicket as *C. buxifolia* or *C. horizontalis*, consequently the fruits are seen to advantage. The leaves are roundish and semi-evergreen, being often retained until well on into February. The fruits are as large as a good-sized Pea, very freely produced, and bright red in colour. For a sunny position in light, loamy soil it will be found a capital plant, while it also thrives in less favoured aspects. Cuttings of half-ripe wood in summer root readily, and a stock of plants can soon be raised suitable for permanent positions. *W. D.*

PHOTINIA SERRULATA.

In reply to "H.W.," p. 233, I may state that no damage has been done by frost this season to the young growths of this shrub in our district, and I question whether this plant is really as tender as it is commonly believed to be. We have a large specimen in a somewhat exposed situation (although it is against a wall), and another smaller plant growing on a sloping bank. They are both doing well, and have young growths upwards of 6 inches in

length. We have had considerable frost this winter—the lowest temperature reached being 11° Fahr. on December 30, whilst on March 12 it was down to 21°; many plants have suffered more or less, but the Photinias look much the same as they usually do at this season of the year. I only remember these plants being damaged once in the past thirteen years, but they quickly recovered, that was in 1895, when a minimum temperature of 3° below zero was registered on February 8. This shrub is worthy of growing for its fine, bold foliage, and for the rich, brown tint of the young shoots, which always start into growth early; its flowers are not freely produced, and are of no great beauty. *W. H. Divers, Belvoir Castle Gardens, Leicestershire.*

—This evergreen is flowering here in the open garden for, I believe, the first time, although it has been in its present position for over sixteen years. The terminal inflorescences began to unfold long before Christmas, and we quite expected the flowers to expand about the end of February, but even now (April 5) no expanded flowers are visible. This appears strange, after reading of its flowering in Surrey so early in the year. *J. Mayne, Bickton.*

NOTICES OF BOOKS.

INDIAN TREES, &c., by Dietrich Brandis, K.C.I.E. London: Archibald Constable. 8vo., pp. 767, figs 201.

In the title page to this volume Sir Dietrich Brandis briefly indicates the nature of its contents by stating that it is "an account of trees, shrubs, woody climbers, Bamboos and Palms indigenous to or commonly cultivated in the British Indian Empire." When we consider the vast extent of the Indian dominions, their varied elevations and climate from the Arctic snows of the Himalayas, the saturated Khasya Hills, the dry regions of Sind and Rajputanah, the swamps of the Sunderbunds, the mangrove thickets along the coast, and tidal rivers, we can form some idea of the magnitude of the task undertaken by the author. Sir Dietrich had, nevertheless, special facilities for the execution of his task. His lengthened service in various parts of India, his highly successful organisation of the forest-service, his relations with forest-officers in all parts of the Peninsula and Burma, have given him unrivalled opportunities. His personal endowments as an administrator and a botanist have enabled him to make the best use of these opportunities. He has had the willing assistance of his pupils and brother officers, whose aid he courteously acknowledges. Without the *Flora of British India*, edited and very largely composed by Sir Joseph Hooker, Sir Dietrich's task would have been even more laborious than it has been, and without the collections at Kew, the compilation of the volume would have been well-nigh impracticable.

It is, however, impossible to turn over the pages of this volume without a feeling of admiration for the skill and knowledge displayed by the author and of wonder at his long-continued, indefatigable powers of work and research. Over 4,400 species are described and classified in such a manner as to facilitate the work of forest-officers and others in the identification of the trees and shrubs they meet with. The internal structure of the timber and the details necessary to be known in order that the forests may be efficiently and economically managed are, relatively speaking, only lightly touched on in this volume. Many similar ones would be needed to contain all the details the practical forester and woodman requires. In the meantime Mr. Gamble's valuable *Manual of Indian Timbers* supplies much information on these points. The ambition of Sir Dietrich Brandis has been, he says, "to publish a pathfinder through the bewildering variety of trees, shrubs, climbers, Bamboos and Palms which constitute the forests in the different provinces

of India." The author, as we venture to think, very wisely, in a book of this character, takes a broad, comprehensive view of species. This is certainly more convenient for the practical forester who, with this guide before him, can divide and sub-divide on the spot according to the evidence and the conditions before him.

In a rather lengthy introduction, the author descants upon the climate and topography of the several provinces of India—an important summary, the value of which would have been enhanced by the use of side-headings or other devices to facilitate its consultation by the student. In the descriptive part of his volume, Sir Dietrich has, for the most part, followed the sequence of families adopted by Bentham and Hooker in their *Genera Plantarum*, with a few deviations, which will, we think, commend themselves to the botanical reader.

Comparatively few synonyms are given, but native names, such as the Indian forester is likely to hear, are freely quoted. The descriptions are brief but clear, and are followed by indications of the habitat and geographical distribution of each species. Occasionally anatomical details are given, which will be very serviceable, and will, it is to be hoped, lead forest officers largely to increase our knowledge in this direction. The three Cedars *Deodara*, *Libani*, and *Atlantica* are, for practical purposes, treated as distinct species, as are also the three Silver Firs *Abies Pindrow*, *Webbiana*, and *densa* of Griffith. *Cupressus lusitanica* (the Cedar of Goa) is found in a cultivated state in Western India, and is referred doubtfully to *C. torulosa* or to *C. sempervirens*.

The illustrations are helpful, and occupy in all some sixty pages. Considering the length of time required in dealing with such a mass of detail, the errata and misprints are very few, but numerous "addenda," which have accrued during the preparation of the book, have been added in a supplement. There is a copious list of vernacular names, and a detailed index to orders, genera and species. Bibliographical details and references to illustrations are somewhat scanty, but the necessity for compression is no doubt accountable for the omission of all except those which were absolutely necessary. The book is an example of energy, accuracy, and lucidity of treatment on the part of the author, who, by its publication, has conferred a benefit on Indian forestry which will be as lasting as it is valuable.

ICONES SELECTAE HORTI THENENSIS.—This publication, devoted to the illustration of plants growing in the garden of M. Van den Bossche, of Tirmont, has now reached its sixth volume. The critical descriptions and notes are from the pen of M. de Wildeman, and are characterised by careful research and judicious comment, whilst the illustrations by M. d'Apreval are excellent. In the recent numbers are illustrations of *Rhus vernicifera*, tab. 201; *Echinocereus Salm-Dyckianus*, tab. 202, a species with cylindrical fluted stems and orange-coloured flowers; *Pisonia Brunonis*, tab. 203; *Agave deserti*, tab. 204, a species which flowers readily in cultivation. The spiny leaves of this plant greatly impeded the march of the soldiers in Lieut. Emory's Expedition in California in 1846; *Kniphofia Tysoni*, with reddish-yellow flowers, tab. 205; *Leucæna glauca*, tab. 206, a Brazilian Mimosa-like plant; *Tricholepis furcata*, a Thistle-like plant, tab. 207; *Teucrium fruticosum*, tab. 208, a well-known old greenhouse plant, native of the Mediterranean region; *Grevillea asplenifolia*, tab. 209; *Lissochilus Krebsii*, tab. 210, a South African species extending to the Mozambique district, but treated as a cool greenhouse plant. In relation to this species, M. De Wildeman remarks that there is probably not a single species of plant of which we can certainly determine the limits of variation. How true this is is shown by the different opinions held by different botanists as to what constitutes a species and the consequent accumulation of synonyms.

THE ROSARY.

CULTURAL NOTES FOR APRIL.

STANDARD and dwarf Roses, despite the severe frosts of January and February, have, on the whole, a very healthy appearance. All manner of material used for protection, including the earthing around the stems, should now be removed, but the surface mulching should not be disturbed unless it be to renew it. All dead and decaying wood or any growths injured by frosts should be cut back to an outward bud on healthy wood. Standard and half-standard Briars with injured or decaying wood should also be cut down to firm, healthy growth, and afterwards sealed at their

generally, as it does its work quickly and answers for the general class of hardy trees and shrubs, but for Roses they are too crushing and bruising in their severing, and for that reason a cleaner cut with a sharp knife is better. Cuttings inserted in the open garden during last October should now have the soil about them well trodden, as they will probably have become loosened by the winter frosts. Renew and shake up the surface mulching about them, and if the weather is dry soak the ground well with water. An important matter during the early summer is the shading of the cuttings from strong sunshine, or there will be many losses. This can be done by sticking in the ground amongst the cuttings some leafy branches of evergreens that can be renewed when necessary.

the bud, except one, should be removed, together with any suckers that spring from the base of the stock. In the beds that were thinly planted during February with half-standard varieties room was left for planting, either now or early in May, Teas and Noisettes from pots, for the purpose of carpeting the ground with the long shoots that must be evenly and horizontally pegged down to 4 to 6 inches above the surface of the bed.

ROOTED CUTTINGS.

The most forward of the young plants on their own roots ready for removal from the hotbeds can now be re-potted into 4-inch pots and placed in a fresh hotbed that has been prepared in advance. The frames should be kept close for a



[Photo by E. J. Wallis.]

FIG. 98.—HELLEBORUS CORSICUS. COLOUR OF FLOWERS YELLOWISH-GREEN,

cut ends with a little grafting wax to prevent bleeding. Late spring-planted Roses and the more tender varieties of Teas should be sparingly pruned. Choice of proper stock is a great factor in successful Rose-growing. The climbing varieties of Teas and Noisettes with long growths succeed best when worked on the de la Grifferaie stock, and this especially applies to such varieties as Maréchal Niel, Mme. Berard, Aimée Vibert, Rêve d'Or, W. A. Richardson, Reine Marie Henriette, Cheshunt Hybrid, and Gloire de Dijon. The hybrid perpetual class flourish on either the Briar or the Manetti stocks, but they are stronger as dwarfs on the latter. Teas, Hybrid Teas, Hybrid Chinas, and some others succeed best on the Briar raised from cuttings or from seed. All these types of Roses and, in addition, standard Briars succeed best planted in a stiff loamy soil.

The secateur is a popular tool for pruning

RAISING STOCKS FROM SEEDS.

The seedling Briar is a good stock for the grafting of Tea, Hybrid Tea, and Noisette Roses, and the present is a suitable time to sow the seed. If the hips have been laid thickly together during the winter months they will now separate freely, and the seed will be found in a fit condition for sowing in shallow drills made a few inches in depth. Sometimes the seed will not all germinate in the first year. In the third year from the time of sowing most of the stocks will be of sufficient size to bud or graft upon, and in the third year it will be best to select those that are ready for working and to re-plant the smaller ones into nursery beds. By the end of the present month, or as soon as the sap becomes fairly active, the maiden budded shoots of standard and dwarf varieties should be cut back to within 2 inches of the bud, and after the latter has pushed a few inches, all the wild shoots above

few days, and be shaded when required, for the temperature should not exceed 65°, except with sun-heat. If the temperature exceeds this degree a little ventilation should be admitted at the back of the frame for a few hours daily. The plants when re-potted should be plunged 3 or 4 inches apart in the bed, and water should be sparingly given till the roots become active in the fresh soil. Pinch back the longer and more rambling growths to keep the plants compact and bushy. Ventilation can gradually be increased as the plants become established, and by the end of May or early in June the frames can be removed altogether. The new and old material of the hotbed should be incorporated and made quite firm to a depth of 3 feet. The plants can now be returned to the bed, plunged, and set far enough apart to allow for the season's growth. A good portion of them will probably require shifting again into 5-inch

or 5½-inch pots. The potting should be done without unduly disturbing the roots, and as a compost use yellow loam and decayed manure, with a dash of sharp river sand added to keep the mixture open. The last batch of the forced Roses should now be nicely in bloom, and the usual ventilating of the structure, watering, &c., will be all they require. The autumn and spring grafted Roses will now be making headway, and their potting should soon be brought to a close. All straggling growths should be stopped, and the plants be kept actively growing until the middle of May before placing them in the open air. Use the syringe mornings and evenings, and guard against attacks of aphids and mildew by the use of the vaporiser in the case of the former, and for the latter flowers of sulphur mixed with water and painted on the hot-water pipes. J. D. G.

FRAU KARL DRUSCHKI.

A RECENT number of *Le Jardin* contains a note by M. Cochet-Cochet concerning the origin of the name of this Rose from materials supplied by the raiser, M. Peter Lambert, of Trèves. In 1898 M. Lambert showed it at Stuttgart, unnamed. A schoolmaster who saw it at the exhibition said that it was a marvel and should be named "Schneekönigin," or Snow Queen. It was agreed that the name was good and suitable, so the Rose was thus spoken of at the time. In 1899, having increased the stock, it was shown again, still under its seedling number and without a name. In 1900, at an exhibition at Trèves, it was staged in competition for a prize of 1,000 marks offered on condition that the successful Rose should be named Otto von Bismarck. It did not gain the prize because the absence of colour was not approved. When the judging was over, and the jury saw the plant flowering in the nursery, they regretted their vote, but it was then too late. Naturally M. Lambert was vexed, and he then asked M. Druschki, the president of the society, if the Rose might take the name of his wife. The proposal was accepted, and that same evening the Rose received the appellation Frau Karl Druschki, by which it is now universally known.

THE WISLEY LABORATORY.

THE new laboratory buildings in the gardens of the Royal Horticultural Society, which we illustrate at fig. 100, are now completed. The buildings, which are of brick with a tiled roof, consist of three main rooms opening out of the entrance hall, together with one or two smaller ones. The front of the building faces west, and looks towards the range of glasshouses in the gardens. Entrance is gained through a glazed porch, which opens into an entrance hall. On the right of the entrance hall is the room designed for a research laboratory, where the laboratory investigations in connection with the experiments on various horticultural problems will be carried out. We understand that the subjects it is hoped to experiment upon in the near future include soil-sterilisation by steam as a means of destroying pests of plants which live in the soil; an investigation into the influence of sterilisation on the plants cultivated in the soil; study of the bacterial flora of the soil; etherisation of plants; and certain plant-diseases. Each of these subjects will entail a large amount of laboratory work, as well as experiments in the garden. Many other small problems are continually arising which will call for immediate investigation, and which can be settled in a short time in a well-equipped laboratory. Opening out of the research room at the back is a commodious and well-ventilated dark room for photographic purposes, while on the south side is a glasshouse for experimental work.

On the left of the entrance hall an office and storeroom are provided, while a loft, with a

boarded floor running over these rooms and the entrance hall, and reached by a trap-door in the ceiling of the latter, provides further accommodation for stores. The entrance to the main room or students' laboratory is in the hall, immediately opposite the main entrance. This is a large room, 36 feet long and 21 feet broad, where table accommodation for twenty-four students at one time will be afforded. The room is admirably lighted in all parts, so that microscopic work and dissections can be carried out under the most favourable conditions. Here the students in the gardens will be instructed



MR. F. J. CHITTENDEN.

in the scientific principles underlying the operations of horticulture, mainly by experimental and observational work carried out by themselves. The window frames are grooved so that light-tight blinds may be fitted, and the room thoroughly darkened at any time for lantern demonstrations. At the further end of the room a low platform is erected for the lecture and demonstration table, towards which the students' tables will face, and at the other end, on the right of the entrance, a fume chamber is built in which experiments with acids that give off fumes likely to be injurious to the instru-

Cupboards for books and apparatus are to be added, and round the wall, just below the windows, runs a range of lockers in which students will be able to keep their books and apparatus. Altogether, the building seems well fitted for the purposes for which it is intended.

The gentleman appointed to take charge of the laboratory is Mr. F. J. Chittenden, the Secretary of the Scientific Committee, whose experience as director of the laboratory at Chelmsford, and instructor in the theory of agriculture and horticulture will be of great service to him in his new appointment. His duties as a teacher will not be so engrossing as to prevent him from carrying on those scientific researches connected with horticulture, for which undertakings the laboratory is primarily intended. What precise direction his studies will take must, of course, be determined by circumstances. In the meantime, we may congratulate the society not only on the establishment of the laboratory, but also on having placed it under the direction of so competent a director.

HELLEBORUS CORSICUS.

THERE is a fine mass of this sturdy Hellebore in the rock-garden at Kew, where it receives partial shade from a Pine tree, and shelter from a belt of Rhododendrons. The photograph reproduced (at fig. 98) shows how happy the plant is in such a position. It has grown there for some years, and has flowered every February as freely as shown in the figure. The stems are 18 inches or more high, but either the weight of the leaves and flowers, or snow, has bent them over so that the stems are not shown. For the wild garden or shrub-border, this plant is just the sort of thing to grow in quantity. It is grown in some gardens as *H. lividus*; indeed, it used to be grown under that name at Kew, until the late Mr. Burbidge sent to Kew a plant of the true *H. lividus* brought by Miss Fanny Geoghegan from Majorca, where this species grows wild. This plant was figured in



FIG. 100.—VIEW OF THE LABORATORY IN THE WISLEY GARDENS.

ments in use, may be carried out. The rooms are heated by means of hot-water pipes and radiators, the water being supplied from the boilers, which heat the glass-houses. An abundant water supply is laid on in convenient places in the laboratories, and artificial lighting by means of acetylene gas, the generator for which is placed some distance from the main building, is provided. The gas will be laid on to every table for table lamps and heating purposes.

the *Botanical Magazine*, t. 7903 (1903), where Sir Joseph Hooker points out that although Lindley and others included *H. lividus* under *H. corsicus*, the species are quite distinct, horticulturally at any rate. The plant here figured has sharply-toothed, rather rigid leaflets and yellow-green flowers, whilst the leaves of the true *H. lividus* are obscurely toothed and softer in texture and the flowers are coloured a dull purplish grey. W. W.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Dendrobiums.—In all large collections many plants, having been kept rather dry at the roots, and in a comparatively cool atmosphere since flowering, are making growths, and those plants that bloomed early have new shoots approaching to 1 foot in length. Such growths will soon produce roots from their base; the plants should therefore be examined without delay, in order that those which require larger pots, and others needing surfacing may be given suitable attention, after which they will require to be placed in their growing quarters. Later plants only now starting into growth may remain in the cooler house until the new shoots are sufficiently advanced to produce roots. Any old plants of special varieties that have deteriorated through loss of roots, or from overflowering, may be broken up, and those pseudo-bulbs that have not produced flowers should be cut off and laid upon some damp sphagnum-moss in the propagating case, or they may be cut up into short pieces and inserted as cuttings, in well-drained pots, using a mixture of sphagnum-moss and coarse sand. Young plants will soon appear from the nodes (leaf-axils), when they may be potted and grown on to take the place of the older examples next season. In re-potting the established plants, the roots should not be disturbed more than necessary. My practice is to carefully break the pot, and take away as much of it as is practicable, and, where possible, to pick out some of the old compost; then to place the whole into a pot of a larger size, placing crocks and bits of peat-rhizome up to the base of the compost, filling up and making the material moderately firm to just below the rim of the pot with equal parts of good fibrous peat and chopped sphagnum-moss, mixed together with sufficient small crocks and coarse sand to keep the materials porous.

Young seedlings that have started into growth may also be re-potted, and for these I use sphagnum-moss well mixed with small crocks and sand. For a few weeks following this operation, keep them rather on the dry side, but as soon as the young roots are seen pushing their way through the compost, afford water more frequently.

General treatment.—Nearly all Dendrobiums require a hot, moist atmosphere when growing, and an abundance of light, but they should be shielded from strong, direct sunshine until towards the completion of growth, when the plants will be greatly benefited by its influence. If an East Indian house is not available, the ordinary plant-stove will suit them admirably. As a guide to beginners, the following popular Dendrobiums may be mentioned: *D. nobile* and its allies, *D. Ainsworthii* × and its congeneric crosses, as *D. splendidissimum grandiflorum*, &c., *D. Wiganianum*, *D. Wigania*, *D. Melpomene*, *D. Findlayanum*, *D. Clio*, *D. Dominianum*, *D. Burfordiense*, *D. Euterpe*, *D. Schneiderianum*, also all the *melanodiscus* and *chrysodiscus* hybrids.

***D. Wardianum* and *D. crassinode*.**—Plants that were imported last January are also in need of fresh potting material, such as fibrous peat and sphagnum-moss to the depth of 1 or 2 inches. Fix the plants firmly in pots that may be suspended from the roof. The best position I have found for these difficult plants is in the Cattleya house, where they will be exposed to plenty of fresh air at all seasons.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

The ventilation and shading of plant houses.—Having regard to the daily increasing power of the sun, the cultivator must be especially careful that both ventilation and shading are afforded as soon as necessary. A common mistake made by beginners in respect to ventilation is that they first allow the atmospheric temperature to rise far too high, and to remedy this, open the ventilators wide, thereby causing an inrush of cold air which, by decreasing the

heat in the house suddenly, causes the plants to suffer a check, which is generally followed by mildew and impaired health. If, from any cause, the house has been allowed to get too hot, the careful cultivator will open the ventilators to a safe degree only, and by lowering the blinds, damping the house thoroughly, and perhaps spraying the plants over, will soon reduce the atmospheric temperature without causing injury to the plants. The stove may now have an atmospheric temperature at night of 70°. On bright mornings it will soon rise to between 75° and 80°. At this stage admit a "chink" of air, if possible on the side of the house sheltered from cold winds. As the temperature continues to rise, let down the blinds, after which, when the glass stands at 85°, a little more air may be admitted, which will generally keep the house right until the afternoon, when it will need to be closed sufficiently early to allow the sun to raise the temperature of the house to a considerable degree. At shutting-up time, syringe the plants overhead, damping all stages, walls, and pathways. In hot weather this process may require to be repeated in the evening.

The intermediate house should have an atmospheric temperature at night of about 60°, according to the requirements of the plants at present occupying it. If some ventilation is not left open all night, it will be required early in the morning, probably on first entering the house.

The greenhouses which are filled with flowering plants should be kept as cool as possible, leaving some ventilators open all night and employing shade as soon as the sun shines directly on the house, because flowers under glass will soon fade if exposed to direct sunshine.

The Palm house.—A permanent shading will be preferable for the next six months in order to prevent the risk of the leaves becoming scalded or burned, as might happen from the slightest neglect in the use of blinds.

Winter-blooming plants.—Old plants of *Salvia splendens*, *Eupatoriums*, *Moschosma riparium*, *Coleus thyrsoideus*, and similar plants, having been cut back and placed in a little warmth, have made shoots suitable for use as cuttings. All these plants make root readily if the young shoots are inserted in light, sandy soil and placed in a warm frame. After these are rooted, pot or box them up, keeping them growing steadily and pinching the tops of the shoots out as required to ensure a sturdy habit of growth.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Devon.

The watering of Wall Trees.—Some six weeks ago attention was called in this column to this important subject. At the present time there is at last a decided change in the weather, and it is hoped there will be a good fall of rain that will save the heavy labour of artificial watering. Should the fall be light, however, do not hesitate to add to it artificially while the surface is moist. March was drier here than in any year since 1899.

Grafting.—This operation is general, and the atmosphere being more moist now the bark will "run" easily. Examine trees that were grafted early, because the unusually hot weather experienced during the last fortnight in March may have caused the clay to crack. This must be syringed with clear water, smoothed over afresh with the hands, and a layer of moss tied over the clay, which may be moistened once a day in bright weather. Although most of the shoots that appear on the stocks of re-grafted trees require to be rubbed off, one here and there should be left to act as a sort of safety valve for the sap, which will accelerate the union of stock and scion.

Sweet Cherries.—These trees have an abundance of bloom, which will afford a shelter for aphids, and the Cherry is one of the first to suffer from their attack; a diligent search should be made every few days and the same remedy applied as advocated for aphids on Peach trees in last week's Calendar. One can quickly destroy the green fly; it is the black fly that is

capable of causing so much trouble and mischief if allowed to get the upper hand. As soon as the fruits are visible and the nights become warmer, the trees may be syringed with Quassia Extract or with "Abol," a proprietary insecticide.

Plums.—It is many years since there was such a wealth of blossom on our wall trees, even the old Greengage variety presenting a picture of snowy whiteness, thanks to the insecticide syringed over the trees in February, which prevented the tits destroying the buds. The Plum tree is one of the worst offenders as regards pushing up sucker growths from the stock it is worked on. These should be destroyed early, tracing them to their origin and cutting them away with the knife. Whilst writing about "suckers," it may be cited that the Peach, Apricot, and Pear offend in this way, and require the same treatment.

A reminder.—Complete without delay all arrears in the matter of pruning and training of the Fig, late planted fruit trees, or bushes of any kind, as growth will be general even in northern districts by the time these notes are in print.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Tomatos.—A batch of plants for planting against walls should be brought on a little in advance of those intended for the open ground, as these former may be planted out a fortnight at least earlier than the latter plants. Both batches should be kept in an atmosphere of intermediate temperature for a short time longer, but gradually hardening them and re-potting them as growth advances, until they are well established in pots measuring 6 inches in diameter. It should be so arranged that the plants will arrive at such a stage as just described by the end of the month of May or early in June, because it may reasonably be expected that the condition of the weather at that time will be favourable to the plants being removed to the open air. If the plants were ready for any appreciable length of time before it was possible to plant them out, they would get into a starved and excessively hardened condition, which would check growth for some time afterwards.

Carrots.—If small sowings of the early varieties were made in warm situations, as was previously advised, the seedlings will now be showing well through the soil. Make a further sowing of Early Gem or some similar variety in order to provide for a supply of roots at the time which will intervene between the earliest crops and the main crop. Seeds for the main crop may also be sown at the present time. In some districts Carrots are often a very difficult crop, and the sowing of seeds in April is attended with comparative failure, it being better in such cases to delay the sowing until about midsummer. The best remedy I can suggest for this state of affairs is that of deep digging and manuring, getting the preparation of the ground carried out earlier than such work is often done. The selection of varieties must be determined by consideration of the nature and depth of the soil. It would be useless attempting to grow good specimens of the Long Surrey type in heavy, or shallow soil. In such conditions, varieties of the "intermediate" type should be chiefly depended upon for the supply.

Cabbages.—If this crop has been neglected, and the surface soil has not been frequently stirred with the hoe, there may be observed a tendency in the plants to run to seed, but where hoeings have been frequent and an application of nitrate of soda has been applied to the soil, the plants will now be making good progress. If the much needed rain would only descend, some early varieties such as Sutton's April would be fit for consumption by the time these lines are in print. This variety will be closely followed by Ellam's Early and Wheeler's Nonpareil, but although "Flower of Spring" is growing side by side with these, I cannot speak so highly of this variety, after a trial of three seasons, as some writers have done in the *Gardeners' Chronicle*, excellent though it may be in some other districts.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq.,
Norwood, Alloa, Clackmannanshire.

The Muscat house.—The vines are now coming into flower, and will require a dry atmosphere and a night temperature of not lower than 70°, while the day temperature should not fall below 85°. Admit outside air by the top ventilators only, and close them early in the afternoon, when the thermometer registers 90° to 95°. Turn on the valves of the hot-water system at 6 p.m., and shut them again at 8 a.m. Open the ventilators in the morning, when the temperature of the house has risen 8° above the night minimum temperature, and gradually increase the amount of ventilation until midday, according to the aspect of the house; gradually diminishing it again from this time until 4 p.m., when the house should be quite shut, with a temperature of 90°. Go over the bunches at midday and dust them with a hare's tail or some other suitable brush, and at the same time give the rods a sharp rap with the hand to disperse the pollen. Tie the young growths to the wires and pinch out their points after they have developed three or four leaves beyond the bunch. Pinch the laterals at the first leaf, and rub out all other shoots as they appear.

Black Hamburgh.—Vines in late houses are now showing their bunches; the night temperature should be increased to 65°, and that of the day to 80°. Give ventilation daily by the top openings if the weather is favourable, but close and damp the vinery early in the afternoon, using tepid water for the damping. At this stage do not hurry the vines which have little or no root action thus early. Turn on the valves at night time and shut them again in the morning if the weather is fine.

Early Tomato plants in pots are now showing their flowers. The temperature in which they are growing should not exceed 65° Fahr. at night time, and 75° to 80° by day. Admit outside air early in the morning, and keep the house drier than usual. Rub out all lateral growths as soon as they appear, and train the plants on a single stem, pinching them when they have reached the limits of their stakes or trellis on which they are trained. Give the trellis or stake a sharp tap at midday to distribute the pollen and thus assist the fruits to set. Afford tepid water to the roots as soon as the fruits commence to swell.

Tomatoes in 6-inch pots will now be ready for shifting into their fruiting pots (9-inch) or for planting into borders or boxes. The compost should consist of well-chopped, turfy loam with a liberal admixture of lime rubbish and wood ashes. To each barrow-load of the compost add a 6-inch potful of "vine and plant food." Before potting, see that the plants are not dry, and to any that require it give a good watering with tepid water. Pot and plant very firmly, and afford sufficient tepid water afterwards to settle the soil about the roots. After planting, stake and tie carefully—never tightly. Trim all on the single-rod system, rubbing out all lateral growths as they appear.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow,
Cornwall.

Calceolarias.—If their flowering positions are ready for their reception, the bedding varieties may be planted out at the first suitable opportunity, for it is essential that these plants should become well rooted before hot, dry weather sets in. See that the plants are watered at the root before transplanting them, and after planting tread the beds evenly, finishing by hoeing the surface soil. It is assumed that the plants have been well hardened by leaving the frames open whenever possible—at night as well as by day. Such plants, even of the more tender species *C. amplexicaulis* are uninjured by slight frosts. Should more than 3° of frost occur we take the precaution of sprinkling the plants with cold water before the sun shines upon them. If the flowering quarters are occupied with spring-flowering plants, it will be well to transplant the *Calceolarias* into open pits, leaving ample room between each plant, and using a soil calculated to induce the formation of roots.

Violets.—As soon as the flowering is finished fresh plantings should be made. The single Violet will thrive in most soils, but the most suitable is a deeply-worked, fairly heavy, rich loam. Much fresh air is necessary for their well-being. When planting it should be remembered that the earliest flowers are obtained from a sunny bank, and the latest flowers are gathered from plants growing in cool positions, such as the north side of a hedge, where the shade is not too dense. Red spider being the Violet's greatest enemy, care should be taken to use only clean runners when planting fresh beds or borders. Of the many varieties, Princess of Wales, Russian, and Wellsiana yield the largest flowers, but many people prefer the perfume of the smaller-flowered Czar. The white variety Comte de Brazza is always acceptable.

Hardy aquatics.—Although hardy Nymphaeas may safely be disturbed at any time between the beginning of April and November, the best time for this to take place is just as growth commences, which is usually about the middle of April. Where the pond possesses a natural bottom, and there is a good annual deposit of humus, little need be done after the plants are properly sunk into position. In artificial ponds and Lily-basins, where there is no natural supply of food, it is necessary to give an annual top-dressing. Where it can be conveniently done, it is well to first drain off most of the water—choosing a dull day, for the leaves will quickly "scorch" when out of water. I have found the most expeditious method of applying the top-dressing is to place cakes of dried cow manure where they will best remain on the surface of the mound, or, if possible, pressing them into the soil, and afterwards lay on turves of loam with the grassy side downwards. A few sticks stuck through the turves will keep them in position.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and
Open Spaces in the City of Cardiff.

The provision of music in parks.—Many park-superintendents are not altogether enthusiastic in advocating the provision of music in public parks, as they are inclined to regard it somewhat in the same light as they do pyrotechnic displays and other forms of popular entertainment. When viewed strictly from the gardener's standpoint, there is little wonder at their taking up this attitude, as money spent on any form of amusement leaves nothing tangible behind to show for the expenditure, and there are few forms of entertainment upon which money can be so quickly and sometimes unprofitably spent, as music. One can hardly help sympathising with the superintendent, who may have had to curtail his expenditure on horticultural matters, standing by and seeing an expensive band playing on a wet day to only a few dozen visitors. If the sums of money expended annually in some towns for the provision of music in the parks were laid out on permanent work, such as the formation of lawns, plantations and flower borders, or the erection of conservatories, &c., a more lasting value would undoubtedly be obtained for the outlay.

A wider view.—It must, however, always be borne in mind that a parks department has to look beyond purely horticultural considerations, and has to do everything which is reasonable and within its power to make its parks and open spaces as interesting and attractive as possible to the greatest number of people. Music is one of the best means of attracting people to the parks, hence those in charge, instead of regarding it solely as an expensive luxury, should use it as a powerful means to an end. My own experience in this matter is that since the introduction of music into the parks here they have become exceedingly popular with every section of the community.

Methods of raising money.—The amount of money expended upon music and the methods of raising it vary considerably in different towns. In the larger cities sums varying from £1,000 to £10,000 are annually spent, while in the smaller ones it ranges from £25 to £500. By special Acts of Parliament several cities are permitted to charge the rates to the extent of 1d. in the pound for the purposes of supplying

music; some towns are only allowed to spend such monies as may be derived from park property; many others have to depend upon voluntary subscriptions or on the free services of bands—a very unsatisfactory position for any town to be placed in.

A musical expert.—Where a large sum of money is annually expended upon music, it is always well to have a musical expert as adviser to the parks committee concerned, as the selection of bands and the class of music to be played are hardly matters upon which the ordinary parks-superintendent can be expected to give the best advice. Towards the end of May is usually considered early enough to commence evening band-performances in our parks. Prior to that date the evenings are usually so chilly that few visitors care to sit about to listen even to the best of bands playing in the open air. As this season is fast approaching, arrangements for engaging and allocating bands, if not already taken in hand, should be made without delay. When the amount of money available for the provision of music is definitely known, it is much the best plan to arrange the season's programme at the very beginning rather than engage and allocate bands as the season goes on.

Causes of extravagance.—Two matters which lead to the squandering of money on bands should be carefully guarded against by those who have to do with their selection and allocation. One is the favouring of local, inferior bands to the exclusion of better-class outside ones. The other is ward-jealousy. It is exceedingly bad policy to engage an inferior band, even at a lower fee than that paid to a good band, simply because its members are rate-payers, and it is equally bad policy to send a band to a small, open space in an out-of-the-way part of the town merely for the sake of satisfying the various wards and their representatives.

Provision of seats.—In parks situated in the better-class districts of towns, chairs should always be provided in the vicinity of bandstands, as by letting them during the performances at a penny each they become a source of considerable revenue. Last year in one of our parks a sum of £102 was secured by the letting of chairs. Printed programmes can also often be made a means of bringing in revenue, both by being sold to the public and as a medium by which tradesmen may advertise their wares.

Brass, reed and orchestral bands, and even male voice choirs have all, at one time or another, been employed here. The two last-mentioned proved the least satisfactory in the open air, yet they were appreciated as a change from ordinary band performances.

SUB-TROPICAL GARDENING.—Whilst agreeing in the main with *Puise's* remarks respecting sub-tropical gardening in public parks (see p. 213), it appears to me he has omitted a very important point in connection with the subject of shelter. *Puise* infers that it is unnecessary to introduce shelter on the S. and S.W. sides; but, in my opinion, shelter on these sides is quite as important as on any other. The sub-tropical garden at Battersea Park has earned for itself a world-wide reputation, and there it will be found that the S. and S.W. sides are protected, not only by the planting of tall-growing trees, but also by the raising of high mounds. In this we see the remarkable forethought of the man who planned this garden (J. Gibson), for the prevailing winds in the north temperate zone are the S. and S.W. anti-trades, therefore the importance of protection from such winds. *Puise* realises the importance of protecting the tender foliage characteristic of most sub-tropical plants; he recommends protection from the cold N. and N.E. winds, but not from the winds that prevail, which, although perhaps not so cold, would prove equally disastrous by virtue of their force. It appears to me one should aim at selecting a site possessing these qualifications in the way of shelter where possible. Beds and borders should be at least 30 yards away from the tall-growing trees in the shelter belt for the benefit of those subjects that require full exposure to light and air. By careful and judicious planting, however, and a wise selection of plants, it will be possible to find suitable subjects for the shaded nooks as well as for the more fully exposed parts of the garden. S. T.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 16—
Roy. Hort. Soc. Coms. meet.
British Gard. Assoc. Ex. Council Meet.
Shropshire Hort. Soc. Spring Fl. Sh. at Shrewsbury.

THURSDAY, APRIL 18—
Linnean Soc. meet.
Manchester & North of England Orchid Soc. meet.
Huntingdon Daffodil Show.

FRIDAY, APRIL 19—
Kent, Surrey & Sussex Daffodil and Spring Fl. Show at Tunbridge Wells.

SATURDAY, APRIL 20—
German Gard. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—47.6°.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, April 10 (6 P.M.): Max. 51°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 11 (10 A.M.): Bar., 29.8; Temp., 47°; Weather—Overcast.

PROVINCES.—Wednesday, April 10 (6 P.M.): Max. 49°, S.W. Ireland; Min. 42°, Scotland, N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Perennials, Border Plants, Hardy Bulbs, Azaleas, Palms, Ferns, &c., at 12; 4,000 Roses in variety at 1.80 and 2.80. at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

Large quantities of imported and established Orchids in variety from various growers, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Roses, Palms, and Decorative Plants, at Stevens' Rooms King Street, Covent Garden, W.C., at 12.80.

We have received the following communication relating to the interesting Service tree from Mr. Robert Woodward, Junior, Arley Castle, Worcester:—

"In the year 1678 Edmund Pitt, 'a very knowing botanist and alderman of Worcester,' wrote a letter to the Royal Society, from which an extract is printed in their *Philosophical Transactions* (vol. xii., 978), in which he says:—"Last year I found a rarity growing wild in a forest of this county of Worcester." He then gives the names of some early botanists and points out that they agree that this tree (*Pyrus Sorbus*) is commonly found in France, Germany, and Italy under various names, but that none of them

"Nor any of our countrymen as Gerard, Parkinson, Johnson, How, nor those learned authors Merret or Ray, have taken notice of its being a native of England. Nor," he continues, "have any of our English writers so much as mentioned it, saving that Mr. Lyte, in his translation of *Dodonaus*, describes it under the name of the Sorb-Apple, but saith no more of the place but that it groweth in Dutchland."

"The 'common people,' according to this historian, recognised that they had in their midst a tree of some interest, but from the fact that they recognised it as 'a curiosity' for only upwards of a hundred years points rather to the conclusion that their knowledge only sprang from the notoriety which probably had been given to it by that 'knowing botanist' Pitt in 1678. We also learn from Nash that the gardeners of Sir Walter Blount and Sir Edward Winnington both tried to graft and bud it, and also to plant cuttings, and that he himself intended to try and raise some plants from seed if the fruit ripened. Search fails, however, altogether to prove that the gardeners of the above-named baronets were successful in their laudable endeavours to raise descendants of this unique tree. Nash informs us that at that date (1781) he knows of no other specimen in the county.

In describing the tree Pitt says:—

"It resembles the *Ornus* or Quicken tree, only the *Ornus* bears the flowers and fruit at the end, this on the sides of the branch." He continues: "Next the sun the fruit hath a dark red blush, and is about the bigness of a small Juneting Pear, in September so rough as to be ready to strangle one, but being then gathered and kept till October, they eat as well as any Medlar." Concluding, he asks: "Whether a verjuice made of this fruit, either ground with Crabs or Grapes, or, if plentiful, alone, would not, being kept for some time, prove one of the best acid-astringent sawces that Nature affords."

This is the first record of a *Pyrus Sorbus* having been observed as growing in Great Britain. He seems to have made a search in most of the botanical works of that date, and to have come to the conclusion that up till then no one had ever considered that this tree grew wild in this country.

The next mention of the *Pyrus Sorbus* is by Miller, who, in his dictionary, says, under *Sorbus sativa* (1731-1768) that

"The manured service was formerly said to be growing wild in England, but this, I believe, was a mistake, for several curious persons have strictly searched those places where it was mentioned to grow, and could not find it."

Perhaps they only searched the mountainous parts of Cornwall, where Ray, in his *Synopsis Methodica* (3rd Edit., p. 542) mentions it as growing, or the moorlands of Staffordshire, where Dr. Plott also mentions it as occurring (*vide infra*). Anyhow, we must take it that the "several curious persons" failed to search Wyre Forest with sufficient accuracy, for we still find authorities writing about this tree of Pitt's at a later date. In the *History of Worcestershire*, by Nash (vol. i., page 11), published in 1781, we find an account of this same tree. Nash gives the exact locality. He says:—

"In the eastern part of the parish" (Aka or Rock), "about a mile from Mopson's Cross, between that and Dowles Brook, in the middle of a thick wood belonging to Mr. Baldwyn, is a very uncommon tree, which I suppose to be the *Sorbus sativa pyrifomis* mentioned by Pitt in the *Phil. Trans.* for the year 1678." In describing the tree he says: "The bark resembles the Pear tree, as does the fruit, except that it is not quite so large as the smallest Pear; the leaf and the blossom exactly resembles the Mountain Ash." He adds that: "The common people in the neighbourhood, among whom this tree has been esteemed a curiosity for upwards of a hundred years, call it not improperly the Quicken Pear tree."

The "common people," according to this historian, recognised that they had in their midst a tree of some interest, but from the fact that they recognised it as "a curiosity" for only upwards of a hundred years points rather to the conclusion that their knowledge only sprang from the notoriety which probably had been given to it by that "knowing botanist" Pitt in 1678. We also learn from Nash that the gardeners of Sir Walter Blount and Sir Edward Winnington both tried to graft and bud it, and also to plant cuttings, and that he himself intended to try and raise some plants from seed if the fruit ripened. Search fails, however, altogether to prove that the gardeners of the above-named baronets were successful in their laudable endeavours to raise descendants of this unique tree. Nash informs us that at that date (1781) he knows of no other specimen in the county.

Nash gives a fine plate of this historic tree, and its height is stated as 40 feet. The next writer who mentions the tree is Smith, in his *English Flora* (1824-1828). He says that there is no positive habitat given, except that of a solitary tree in Wyre Forest, near Bewdley, Worcestershire.

Again, in the *Arboretum et Fruticetum Britannicum* (1854, 2nd edit.), we find Loudon saying (vol. i., page 23) that "The Mulberry, the Chestnut, and Fig, and the Sorbus or true service were introduced by the Romans." He adds:—

"It is singular that not far from one of the very few habitats in which the true service is to be found in a wild state in Britain, viz., Wyre Forest, in Worcestershire, the remains of a Roman villa were some years ago discovered (see *Arch. Mag.*, ii., p. 94),"

and he thinks that it is not improbable that the tree referred to may be a descendant from a service planted in the orchard belonging to the adjoining Roman villa. He gives a drawing of this tree, which was sent him by the Earl of Mountnorris, and says that the tree is "of great age, and is now in a state of decay." He states that in France the tree lives to a great age, and that some specimens are believed to be 1,000 years old. The height of the tree is given as 45 feet and diameter of the trunk 1 foot from the ground 1 foot 9 inches. He says that the tree is tender when young, even in France, and that the grafting operations require to be performed with the greatest care because it is the most difficult of all non-resinous trees to graft successfully. Small wonder, then, that the efforts of the two gardeners mentioned above should have been crowned with such little success.

But to return to Pitt's historic tree now nearing the end of its life. In *The Botany of Worcestershire*, by Edwin Lees (1867), at page 4, we read that in July, 1853, the tree was

"In a very decrepit state, with lank, bare and lofty branches, and only exhibited vitality at its very summit. Very little fruit was then produced, and the Sorb tree presented a scraggy and decrepit aspect. This venerated sylvan monument which, left only to Nature's care, might have existed for centuries longer, was mischievously burned down in 1862."

In a footnote we read that Dr. Plot, when he mentions that the Sorb tree grows "in the moorlands of Staffordshire," may have been referring to this tree, for a portion of Staffordshire, viz., Upper Arley, approaches very near to the Wyre Forest.

Lees' theory as to the existence of the Sorb tree in Wyre Forest differs from Loudon's; he is of the opinion

"That the tree was brought over from Aquitaine and planted beside a hermitage in the forest by some recluse, who was visited by those who venerated the tree for its protective powers." He says: "I was assured by an inhabitant of the vicinity that the hard fruit of the Sorb was formerly hung up in cottages as a protection from 'the witch,' and even now the idea of its virtues has not quite died away. Its relationship to the Mountain Ash, still superstitiously regarded in Scotland, renders it likely that this tree should be considered equally, if not more powerful, as a charm against witchery. A mound of stones now overgrown with brambles may be noticed by close inspection near the tree, probably the remains of the hermitage, for many existed previous to the Reformation in the north of Worcestershire. The hermit perhaps had a garden, for the Privet and the Prunus

domestica grow close by, though I did not see them elsewhere in the forest."

In Lees' book we find "our very knowing botanist" referred to as "Mr. Edmund Pitts, an Alderman (and probably a medical practitioner)." He also tells us that the Sorb was considered an old tree by Pitt in 1678. He relates finally that

"Mr. George Jordan, an untired explorer of

It is comforting to be able to relate that the ruffian met with a reward he justly deserved. When visiting the spot some few years ago, in company with an old woodman of the forest, we were told that the destroyer was caught, and convicted of setting fire to some farm buildings, and transported. Lees obtained pieces of the wood that survived the fire, and they were carved into drinking cups,

are now flourishing specimens in the Arboretum at Arley Castle, Worcestershire.* They were planted probably between 1800 and 1820; the best specimen measures 55 feet in height and 7 feet 4 inches in girth. A plate of this tree is given in vol. i. of *The Trees of Great Britain and Ireland*, by Mr. Elwes and Dr. Henry. It is still called locally the Whitty Pear tree. Many methods have



FIG. 101.—*AGAPETES SPECIOSA*, NEW SPECIES, FLOWERS CRIMSON. SINGLE FLOWER, AND SECTION SHOWING LONG-TAILED ANTHERS. (See "New or Noteworthy Plants," p. 230).

Wyre Forest, regarded the Sorb tree with almost filial love, and that its wanton destruction by ruffian hands was a source of much grief to him, and that he gathered up with decent care the relics that were left of the limbs of the old veteran, some of which he yet retains."

Thus ends the history of Pitt's famous tree, first mentioned by him in 1678, and then considered an old tree, and burnt down by a vagrant in 1862.

and are in the possession of a member of his family at the present time. Other relics are also extant among people who reside in the locality.

It remains to add that the Earl of Mountnorris, whom we have mentioned above as writing to Loudon on the subject of this tree, succeeded in raising two seedlings from it before it was burnt down. These two trees

been tried of propagating this tree, and the writer is informed that success has only been obtained by sowing the pips, which have been obtained from the Pears when they have become rotten. As Loudon points out, the seedlings have been found to be very delicate

* Arley Castle is in the parish of Upper Arley mentioned by Lees above as approaching very near to Wyre forest, and being then in the County of Stafford. The parish has recently been transferred into the County of Worcester.

in the early stages of growth; they are kept in a cool house for the first four or five years during the winter. During this time they only grow about 12 inches, but afterwards they make rather rapid growth up till about the fifteenth or twentieth year.

One seedling raised in this way is growing in the garden of The Precentory, Worcester, and is now 13 feet high and 13 inches in girth. It is about 20 years old, and has not yet borne any fruit.

There are other younger specimens growing in the Arboretum at Arley Castle, by which the interest in Pitt's historic tree may still be maintained.

The fruit, if kept till October, eats like a Medlar, as Pitt observes above. Virgil tells us that the juice of the Sorb was used when wine was unprocurable.

..... *et pocula laeti,
Fermento atque acidis imitantur vitea sorbis.
—Georg. III. 380.

But we doubt whether the liquor so obtained would be very acceptable to anyone at the present day." [There are two good specimens of this tree in the Oxford Botanic Garden.]

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Committees will be held on Tuesday, April 16, at 8 p.m. A lecture on "Rainfall in its Relation to Horticulture" will be delivered by Mr. R. H. CURTIS.

THE BOTANICAL MAGAZINE. This venerable publication, for so many years edited by successive directors of the Royal Gardens, Kew, opens its April number with a figure of:—

DIOSPYROS KAKI (Linn.), tab. 8,127.—Flowers and fruit are produced annually in the succulent house at Kew. Mr. HEMSLEY contributes a brief account of the history of the tree, in the course of which he mentions it as fruiting in the garden of Sir WILLIAM HUTT, in the Isle of Wight. He might have added, unless we are mistaken, that it has fruited against a wall in Canon ELLACOMBE'S garden at Bitton.

ARCTOSTAPHYLOS MANZANITA (Perry), tab. 8,128.—A Californian shrub hardy at Kew with stalked ovate, oblong leaves like those of *Gaultheria Shannon*, and terminal nodding clusters of pink urceolate flowers.

CALLIANDRA PORTORICENSIS (Benth.), var. major (Sprague), tab. 8,129.—A shrub with delicate, Mimosa-like foliage and stalked heads of whitish flowers, the numerous long stamens forming balls of threads.

MECONOPSIS BELLA (Prain), tab. 8,130.—An East Himalayan dwarf species flowered first in the Botanic Garden, Edinburgh. The foliage is much divided and the flowers are borne singly on long, erect stalks. The petals are of a violet colour and contrast with the golden stamens.

CYMBIDIUM ERYTHROSTYLUM (Rolfe), in *Gardeners' Chronicle*, 1906, vol. XL., p. 286, fig. 115, and in *Botanical Magazine*, tab. 8,131.—The flower segments are white but the lobes of the lip are marked with reddish stripes and the column is reddish violet. Introduced from Annam by MICHAELITZ when collecting for Messrs. SANDER & SONS. It flowered first at Glasnevin.

LYONS HORTICULTURAL EXHIBITION.—A horticultural exhibition will be held in Lyons from May 16 to 20, in connection with the Sociétés Lyonnaises d'horticulture, and on the occasion of the National Agricultural Conference and the visit of the English and Scottish Municipalities. Details can be obtained from M. PHILIPPE RIVOIRE, Secretary, Lyons.

*" And for cups of wine make shift with beer and the cider of sour service-berries."

HORTICULTURAL CLUB.—The next House Dinner of the club will take place on Tuesday, April 16, when Professor BOTTOMLEY will talk about "Soil Inoculation."

THE DRESDEN EXHIBITION.—Prof. DRUDE is organising a department of the exhibition to illustrate the history of horticulture. The first period ranging, from A.D. 800-1500, comprises indigenous plants, or those from the south of Europe. 2, the Tulip period, 1560-1670, coincides roughly with the introduction of the Potato, Maize, Horse Chestnut, &c.; 3, the South African and N. American period, 1679-1770, characterised by the introduction of Aloes, Mesembryanthemum, Pelargonium from the Cape, the Weymouth Pine, Hemlock Spruce, Tulip, and other trees from N. America; 4, the period of the introduction of New Holland plants, Acacias, Banksias, Epacris, Araucaria, &c.; 5, the existing epoch, 1830-1900, marked by the utilisation of plants from Eastern Asia, N.W. America, Palms, the extensive introduction of Orchids, &c. The second department of the exhibition is devoted to the display of original works on horticultural botany, relating especially to Germany. A third section is to comprise architectural styles, landscape gardening, &c. Other divisions will include illustrations of vegetable biology, research-stations, schools of horticulture, hybridisation, diseases of plants, and horticultural literature.

KINGSTON VICTORIA HOSPITAL.—A flower show and fete, in aid of the funds of this institution, will be held in the grounds of Elmfield, London Road, Kingston, on Wednesday, July 3rd, 1907. Mr. ALEX. DEAN, 62 Richmond Road, Kingston, is superintending the floral portion of the exhibition.

DAFFODIL SHOW AT BIRMINGHAM.—In respect to the show of the Midland Daffodil Society, to be held in the Edgbaston Botanic Gardens, on the 23rd inst., Mr. ROBERT SYDENHAM writes us to the effect that there are expectations that this exhibition will be one of the best Daffodil shows of the season, and one of the best "that has ever been held in the world."

A REMARKABLE SALE CATALOGUE.—The catalogue of duplicate orchids from the collection of FRANCIS WELLESLEY, Esq., Westfield, Woking, to be offered, without reserve, by Messrs. PROTHROE and MORRIS, at their Central Auction Rooms, on April 23 and 24, is the most remarkable publication of its kind we remember to have seen. It extends over 76 pages, and is illustrated by 40 artistically-produced illustrations of some of the leading kinds. The catalogue contains a very extensive set of white-petalled and albino Cattleyas; the extraordinary Brasso-Cattleya Mrs. Francis Wellesley, and a rich selection of *Cypripediums*, including the fine *C. Thalia* Mrs. Francis Wellesley, which at the sale of duplicates last year reached the record highest price for a *Cypripedium* ever obtained at auction.

MR. JOHN BURN, late Superintendent of the Parks and Gardens of the Leicester Corporation, is engaged in laying out and planting the grounds of the new Leicestershire Asylum at Narborough. Considerable progress has been made with the work. A belt of trees and shrubs extending about two miles round the estate has already been planted, and a wide walk cut out alongside, which does credit to the designer and planter.

THE CLASSIFICATION OF PEACHES.—In a recent issue of *Gartenflora* Herr R. GORTHE, of Darmstadt, prints a paper upon the classification of Peaches. His system is based upon comparison of the size of the flowers; the size, shape and corrugations of the stones, and the glands of the leaves. The article is fully illustrated.

THE AMERICAN GOOSEBERRY-MILDEW IN IRELAND.—Dr. PETHYBRIDGE has a paper in the April number of *Irish Gardening*, in which he says there are at present about 100 gardens in Ireland in which the disease has manifested itself. An illustrative map shows that the greatest number of cases are in the N.E. of Ireland, that the South and N.W. are at present nearly exempt; elsewhere the disease is scattered. It was first noticed in Antrim in 1900. The losses have already been most serious, but the disease has been completely eradicated from some localities, and spur-pruning and spraying with potassium sulphide have had the desired results. Spraying, says the writer, must be thorough, and it must sooner or later come to be regarded as part and parcel of the normal operations of fruit-growing. In the case of the Gooseberry, the spraying must be begun at once, and frequently repeated. It should be needless to repeat that bushes seen to be affected with the mildew should be burnt forthwith.

Professor SALMON is indefatigable in his endeavours to awaken Gooseberry growers to the danger that may accrue from the spread of this mildew. The destruction by fire of affected bushes, and the necessity for spraying with sulphide of potassium ($\frac{1}{4}$ oz. to a gallon of water) are both alluded to. Mr. SALMON quotes a letter from Prof. BEACH, to show that where treatment is begun early, and repeated at intervals of from seven to ten days, the disease may in some seasons be controlled, but that spraying is not so efficacious as eradication. Hence the advice to destroy affected bushes by fire as soon as the disease is detected, and thus check its spread.

During the past week, commencing April 1, I have experimented with fresh potassium sulphide on some of my Gooseberry trees, and I repeated the application yesterday, April 6. The solutions used were respectively $\frac{1}{4}$ oz., $\frac{1}{2}$ oz., and 1 oz. to 1 gallon of water. We have no mildew; the experiment was to test the effect upon the young leaves. No injury has been caused by either of the solutions. The bushes (one long row) are growing under a row of standard Plums and standard Pears. J. Udale.

THE NURSERYMEN, MARKET GARDENERS', AND GENERAL HAILSTORM INSURANCE CORPORATION, LIMITED.—We are informed that the 12th annual general meeting of the shareholders of this corporation was held at 41 and 42, King Street, Covent Garden, on Friday, the 5th inst., presided over by the chairman, Mr. Harry J. Veitch. The business showed an increase in both premiums and interest on investments over previous years. The area now insured is 35,038,527 square feet of glass, valued at £479,531 16s. 8d. A dividend at the rate of $7\frac{1}{2}$ per cent. was declared, together with a bonus of $2\frac{1}{2}$ per cent.; £1,500 was placed to the reserve fund, making a total of £12,000. Five claims were paid during the year.

THE DAHLIA NEWS.—We have two Dahlia societies in this country, but our American friends have surpassed us by the issue of a monthly bulletin. The first number comprises only four pages, two of which are occupied with official details, but the editor deprecates severe criticism, and so long as he "does his best in a sincere and honest way," he has nothing to fear, even though he be "no journalist." The New England Dahlia Society was organised November 2, 1906, for the purpose of promoting the culture and development of the Dahlia; to accurately determine the several classes thereof; to disseminate information and to secure uniformity in awarding prizes at the various flower shows; to establish a standard nomenclature, and to award recognition to new varieties of sterling merit. All communications should be addressed to Mr. MAURICE FULD, 5, Union Street, Boston, Mass.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S YEAR BOOK.—The Chrysanthemum Society, following the lead given it for so many years by the Rose Society, has published its first Year Book, and we feel sure that country members, indeed all the members, will give it a good welcome. The frontispiece is a capital portrait of the popular President, Mr. C. E. SHEA, concerning whose horticultural career some interesting details are given. The editors are Messrs. C. H. CURTIS and C. H. PAYNE, and the following subjects are briefly treated upon by the several contributors: Chrysanthemums in America (C. H. TOTTIV), Chrysanthemums in Decoration (DOROTHY M. OLIVER), Early Chrysanthemums from Stool Divisions (PERCY A. CRAGG), Chrysanthemums in Australia (T. W. POCKETT), Exhibition Incurved Chrysanthemums (W. HIGGS), Analysis of the National Chrysanthemum Society's November Shows, 1905-6 (C. M. COLLINGWOOD), Chrysanthemums for Town Gardens (ELDERBERT F. HAWES), Work of the Floral and Classification Committees for 1906 (D. B. CRANE), Market Chrysanthemums (DAVID INGAMMELLS), Single-flowered Chrysanthemums (W. C. PAGRAM), New Chrysanthemums of 1906 (CHAS. H. CURTIS), and New French Incurved Chrysanthemums (C. HARMAN PAYNE). Writers and editors alike are all photographed, and readers may therefore obtain some knowledge of the personality of the teachers, whilst carrying out their precepts. The printing is clear, and the paper good, whilst a thick cover in a pretty shade of green gives to the book quite an attractive appearance. The price is one shilling to non-members of the society, and the publishers are Messrs. SIMPKIN, MARSHALL, HAMILTON (not MAMILTON, as printed on title page), KENT & CO., LTD.

BEAUTIFUL GARDENS.—In *Beautiful Gardens*, issued by Cassell & Co., Ltd., Mr. WALTER P. WRIGHT, horticultural superintendent under the Kent County Council, explains how to make flower gardens of rare beauty, how to make them quickly, and how to make them cheaply. The work is enriched with a series of practical plans and diagrams, in addition to a large number of garden photographic pictures. The book contains two coloured and 48 half-tone plates.

SOME HANDSOME PETUNIAS.—Herr ERNST BENARY, of Erfurt, forwards a large coloured plate of Petunias with the needlessly cumbersome name of "*Petunia hybrida grandiflora fimbriata*"; that is to say, handsome hybrid Petunias of various colours with fringed petals that he has succeeded in raising. These, in size and colouring, are worthy of the reputation of this well-known firm.

GARDENING IN MADRAS.—Sir JAMES THOMSON, in a lecture before the Society of Arts, says:—"Gardening is a favourite occupation with many; every house has its surroundings of Croton and other foliage plants and shrubs. Rosaries and ferneries are common. Some are able to put down attractive lawns; and in the cool weather with care and attention flowers are in profusion. The water supply and the easy procurements of seeds and plants have, of course, made all this a much easier matter than it once was."

CAPE FRUIT.—The *Cape Times* of the 13th ult. contains a series of interesting illustrations which serve to give some idea of the extent and importance of fruit-culture in that part of South Africa. The figures include representations of a Peach orchard, various illustrations showing the growth, picking, and marketing of Grapes, Peaches, and Figs, the arrangements for cold-storage, and for transhipment.

ROYAL METEOROLOGICAL SOCIETY.—An ordinary meeting will be held at the Institution of Civil Engineers, Great George Street, Westminster, S.W., on Wednesday, April 17th, 1907, at 7.30 p.m. Papers will be read on the following subjects: 1.—"Phenomenal Rainfall in Suva, Fiji, August 8th, 1906," by ROBERT L. HOLMES. 2.—"Temperature around the British Islands in relation to the Gulf Stream," by RICHARD STRACHAN. 3.—"Weather regarded as a Function of Climate," by L. C. W. BONACINA.

JOHANNESBURG PARKS.—From the report of the superintendent, it is evident that great progress is being made in the development of parks and open spaces, and in the lining of the streets with trees. No fewer than ten parks, one comprising a zoological collection, must give no small amount of labour to the superintendent, Mr. A. H. STIRKAT, who holds a certificate from the R.H.S. We are glad to see that it is intended to cultivate representatives of the Transvaal Flora, and not to copy European models too slavishly.

TRANSCAAL TREES.—In the *Transvaal Agricultural Journal* for January is a valuable paper on the native trees of the Transvaal by Mr. J. BURTT DAVY. Attention is called to the different climatic zones of the Transvaal and to the trees which are peculiar to each. In all, 289 species are enumerated. This list is drawn up preparatory to a more complete account of the trees and their uses, upon which Mr. BURTT DAVY is engaged.

THE ACTION OF FROST ON FRUIT TREES, &c.—The Birmingham Department of Economic Zoology would be grateful for answers to any of the following questions. In each case, the informant is desired to give only facts, for the accuracy of which he or she personally can vouch. When filled in, these papers should be returned to WALTER E. COLLINGE, the University Department of Economic Zoology, 55, Newhall Street, Birmingham. 1, At what time of the year do frosts do most damage? 2, What crops suffer most? What parts of the plants are damaged? 3, In the case of trees, are different parts of the tree liable to be affected differently? (e.g., upper or lower branches, branches on different sides?) 4, In the case of sloping ground, what aspects have you found most free from injury from frost, and what aspect most liable to damage? 5, Is a garden in which frosts occur most frequently necessarily one in which the frosts do most damage? 6, In your opinion, is the damage done by the actual freezing, or during thawing? Do you think that if the thawing took place very gradually the damage would be much less? 7, Which of the following situations have you found to be best, and which worst:—(a) the bottom of a valley, (b) the side of a hill, (c) the top of a hill? 8, Do plants which are under trees suffer to the same extent as those planted in the open? 9, In your opinion is the presence of moisture in the atmosphere beneficial or otherwise? 10, Are frosts more injurious in the neighbourhood of water, e.g., river, brook, or pool? In such cases does the size of the piece of water make any difference? 11, Have you had experience of land near a river? If so, have you found any differences between the two sides of the river as regards injury by frost? If you have observed any differences, state the direction in which the river flows and the direction of the winds which are associated with frosts. Have you had any experience of the occurrence of frosts on small islands in river or pool? 12, Have you noticed any difference between different sides of any large sheet of water? 13, Do injurious frosts occur on still or windy nights, or both? 14, State the positions of any districts which are notoriously free from

injury by frosts, and of others which are notoriously liable to damage. 15, Are frosts which occur after rain any worse than those which occur in dry weather? 16, What preventive measures have you found useful? 17, In your opinion are there any varieties of fruit trees, &c., which are more resistant to frosts than others? 18, Have you observed any difference in the liability to injury of crops, &c., on different soils? If so, which soils have you found best, and which worst? Any information other than that required by the above questions will be useful if it is the result of personal observation. Notes made at the time as to direction of wind, state of the atmosphere, and position of injured gardens would be of great value, especially if such notes were made regularly by a large number of trained fruit-growers and gardeners in different localities. Information with regard to any differences between lands lying on different sides of a town or village would also be very acceptable.

Publications Received.—*Weston-super-Mare Chrysanthemum Society*. Prospectus of exhibition, to be held November 14.—*Oesterreichische Garten Zeitung*. March.—*Annalen des K. K. Naturhistorischen Hofmuseums*. Band XX., No. 4.—*Bullettino della R. Società Toscana di Orticultura*. Vol. XII., 3rd Series.—*The Place of Rural Economy in a University Curriculum*. An inaugural address delivered at the schools by Prof. William Somerville, Oxford.—*Proceedings of the Agricultural Society of Madras*. July to September, 1906. The secretary, Mr. L. E. Kirwan, reports the loss of *Lodoicea Seychellarum*, a Palm unique in having grown from the first seed that successfully germinated in Madras. Excessive moisture at the roots was the cause of its death.—*Report of the Work of the West Virginia Experiment Station*, for the years 1905 and 1906. Mr. J. H. Stewart, the director, tells of useful research and work, chiefly in connection with the San Jose Scale and other injurious insects and growths.—*Louisiana Agricultural Experiment Station*. Summary of results with vegetables and fruits at the station from 1892 to 1907. By E. J. Watson. Much of the work was of a "pioneer" description on new ground but has been continued uninterruptedly and with results useful for future growers.—*The Museum Gazette*. March. Contents: Hollow Yew trees, Oak tree trunks and their vestments, Moss and Hepatics, by Rev. E. N. Bloomfield, and seasonal notes.—*How Landlords can create Small Holdings*. Some examples, by L. Jebb; and *The Working of the Small Holdings Act*, with suggestions for its amendment, by L. Jebb.—*Bananas and All About Them*, by J. H. Cook. A plea for the still more extended use of Bananas, and a useful set of recipes for cooking and serving these fruits.—*The Report of the Royal Society of St. George*. This society is still working away to instil patriotism into all classes of Britons. The Prince of Wales is now the president of the society.—*Report on Botanic Gardens in New South Wales for 1906*. Mr. J. H. Maiden announces successful alterations in the Sydney Gardens and good progress in other departments, hindered mostly by Nut grass (*Cyperus rotundus*), which was eventually overcome.—*Annual Report of the Forest Department of Madras*. To June 30, 1906. About 180 square miles of forest were added to the Presidency in the year. Experiments were made with exotic and other plants, and "where all officers have worked hard and willingly it would be invidious to mention any particular one." Mr. Brasier's report is considered to be highly satisfactory.—*Revision of the Genus Spilanthes*, by A. H. Moore, from the Gray Herbarium, Harvard University.—*Flax Culture*, by H. L. Bolley and W. L. Marcey, U.S. Department of Agriculture.—*Some Facts concerning Fertilisers and Their Use*, by Prof. Harcourt, Ontario Department of Agriculture.—*Insecticides and Fungicides*, by Prof. Harcourt and Mr. J. L. Fulmer, Ontario Department of Agriculture. A very useful summary of information on this subject.—*Results of Acclimatisation Work at the Saharanpur Botanical Gardens*. Compiled by the late Mr. W. Gollan, superintendent, with preface by Mr. W. Moreland, director. For years past the Saharanpur Gardens have been used as a testing station for exotic plants of economic value. The results with the principal species under observation are here detailed, and testify to the value of the work.—From the U.S. Department of Agriculture, Bureau of Plant Industry: *Tobacco Breeding*, by A. D. Shamel and W. W. Cobey; and *Seeds and Plants Imported*, during 1904-5.

NEW NARCISSI.

THE varieties Homespun and Open Face, shown in the illustrations at figs. 102 and 103, were shown by Mr. Dawson, Penzance, at a meeting of the Royal Horticultural Society, on April 2. Homespun (Engleheart), which was recommended a First-Class Certificate, is a short-crowned, yellow flower of very symmetrical form (see report of Truro Show, p. 242). Open Face has also exquisite form, a white perianth, and a remarkably flattened corona.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible or the opinions expressed by his correspondents.)

MISTLETO ON LIME TREES (see p. 224).—Sixty years ago (April, 1847) when commencing my gardening career, I was struck with the contorted branches in elongated form, and the twigs having a "witch's besom"-like appearance, in the case of some Lime trees bounding the grounds of Stillingfleet Vicarage, East Riding of Yorkshire. Though Mistleto (*Viscum album*) was sparingly present on the normal branches, there was nothing to account for the contortions although there were some excrescences, and where, evidently, some outgrowths had died or been broken off. This appears to confirm Mr. Elwes' suggestion that the contortions were due to the diversion of the sap at the particular points where manifestly there had been Mistleto which had been culled by the village youngsters in previous years. The vicar in residence in 1835 was renowned for his tolerance and sympathies with the villagers, not the least of his activities being the promotion of allotments and small holdings. Not a cottage was without one or both, in addition to a large garden attached to the dwelling at the time of the repeal of the Corn Laws and the advent of the Potato murrain. But to revert to the swellings on Lime trees, I may say that similar growths occurred on branches of Hawthorn (*Crataegus oxyacantha*), on Poplar (*Populus tremula*), and Crabs (*Pyrus Malus*), Mistleto being present on these trees, and no doubt the swellings were due to the growth being arrested where Mistleto had taken root and been removed at some prior period. Strangely, no Mistleto existed on Apple trees in orchards in the locality. Lime trees, as is well known, produce large swellings in the branches at the points where headed or pollarded, and this increases as the process is repeated, so that the growths become club-like, and have a very unnatural appearance, as may be seen in the case of trees on the north side of the burial ground attached to St. Alban's Abbey, near the ancient gateway of the once flourishing monastery and the present grammar school now being enlarged. G. Abbey.

—Mistleto is remarkably plentiful on Lime trees in the grounds at Hampton Court Palace, and the swellings or protuberances mentioned by Mr. Elwes, p. 224, are abundant. Probably one of the worst examples I ever saw of these elongated swellings or elbows on the Lime induced by Mistleto was at Dropmore, where one tree, standing almost alone in the park, used to present an effective example of the evil of allowing this parasite to disfigure and injure what would otherwise have been a fine specimen tree. I think any person seeing that tree, if still standing—and Mr. Page will perhaps say if it is—would never permit Mistleto to grow on trees under their control. I have often marvelled that this parasite is permitted to infest and disfigure the Lime trees at Hampton Court, but possibly were the bunches of it so abundant there removed, some alarmist, through the daily papers, would raise a loud cry of spoliation. A. D.

—Mistleto is present on several Lime trees here, and in almost every instance the branches have become malformed. One tree has upwards of 60 of these gourd-like outgrowths, and the appearance is very grotesque. Some of the bunches of Mistleto are more than 3 feet or 4 feet through. The parasite is also present on Poplar, Oak, Elm, *Crataegus*, and Apples, and it was also growing on a Horse Chestnut. We have another curiosity—a Holly and Ash having growth in close proximity at the base and again 10 feet from the ground; both trees appear very healthy. D. IV.

HARDY PRIMROSES.—Quite an industry has sprung up during the last few years in the cultivation of this modest flower for market purposes. The florist has turned his attention to raising new varieties, some of which are charming; one of these, named Evelyn Arkwright, is fine of form, sweetly scented, and the flowers are extra large. The Wilson seedlings are elegant and most pleasing in colour, ranging from bright lavender-blue to deep violet-blue. The double Primroses are all free bloomers, and are useful for planting in the border or in the rock garden. They may be had in white, lilac, purple, sulphur, and crimson-coloured varieties. After flowering they should be lifted and divided, and planted in rich deep soil in a partially shaded situation. Mulch and water them during dry weather, and transplant them to their permanent beds in autumn. T. W. Birkinshaw.

ing would thus be presented! If it be said that the cost of so preparing the produce would be too great, certainly the public, being thus able to purchase greens by weight, every portion of which was edible, would gladly pay double the price now paid. Still, farther, what a big weight of garbage would be saved carting to market. Whilst there has been abundant criticism of our insular fruit marketing methods, and it is, unfortunately, owing to our stolid indifference, still necessary, as we seem not to have improved one degree in marketing our vegetables. I can see no advance on what I was familiar with 60 years ago. Whilst our growers complain of the effect of foreign competition in vegetables they do nothing to counteract it. If any doubt the correctness of that criticism, let them see for themselves what is practised in our vegetable markets. A. D.

FRUIT-TREE PRUNING.—As a grower of fruit



FIG. 102.—NARCISSUS HOMESPUN: PERIANTH OF A LEON SHADE OF YELLOW, CROWN OF DEEPER TINT. (See also p. 242.)

CHOU DE RUSSIE (see fig. 104, p. 242).—If Messrs. Jas. Carter & Co. will Anglicise the name of this new winter green and call it Russian Kale, it is probable that this would greatly tend to popularise it. Since the recent R.H.S. meeting when such remarkable samples of this Kale were seen, I have had the pleasure of tasting its sprouts cooked, and can verify the opinion passed upon it by Mr. S. T. Wright, who stated that, having had some cooked, he found it to be exceptionally good. No doubt there will be a big demand for it especially in localities where winter greens of the ordinary type are apt to suffer from hard weather. Whenever it becomes a market green is it too much to ask of the trade that they will depart from the common practice in relation to Kales of cutting them whole, and thus sending to market a great quantity of inedible matter, but instead to gather the stout leafy stems into neat bunches of one pound and two pounds in weight, binding each with raffia, and so sending them to market. What a revolution in Kale market-

trees, especially Apples of the best English, French, and Russian varieties, I have long come to the conclusion that the regular annual pruning of fruit trees as practised by gardeners is a mistake, that is, if quantity and quality are the desired objects. I admit that thinning is necessary every few years, that long branches should be shortened, and that cross, awkward growths should be taken out, but the annual pruning that one sees in most gardens is a mistake. Time spent in cleansing the trees from American blight, manuring, &c., is much more profitably employed. With me many sorts have not failed to crop for at least 20 years, and some seasons very heavily. Prince Albert and Bramley's Seedling are the most prolific sorts, and the trees never fail to fruit; on the former variety I have never been able to get a growth which was too strong to fruit. A local authority on the pruning and growing of fruit trees in Birmingham came to inspect my garden, and after doing so exclaimed: "If I had to start again I should

adopt your system, for you get twice the crop, and with half the trouble." What he calls my principle may thus be briefly summed up: keeping the trees clean, occasional thinning, manuring, and then leaving them alone. A. D., who approves of the usual system of pruning, suggests trials of the two systems. Whenever this is put to a practicable test under similar conditions and with similar sorts, I am pretty sure of the result. J. P.

SPRING BROCCOLI.—When at the Royal Horticultural Hall on March 19 I heard several statements respecting the terrible manner in which Broccoli had succumbed to frost. With us, scarcely 1 per cent. all round have failed. Our practice is to continue lifting the most advanced plants from the open ground and to place them in frames in a position sheltered

—odorus (Campernelle Jonquil) and odorus rugulosus, the last named flowering about a fortnight before the other. The bulbs are potted at the end of September, and the pots are covered with ashes in the usual way and afterwards removed to a frame, in which they remain for a fortnight about the middle of November. They are next placed in an intermediate house, where they remain till they flower. As a rule rugulosus is in flower by the middle of January. The very best bulbs can be obtained at 4s. 6d. per hundred and very good bulbs for much less. We plant them in 5 and 6-inch pots, and place as many bulbs in a pot as it will conveniently hold. Last year on one occasion we had several elevated positions to decorate. Pots of different varieties of Asparagus were intermixed with Jonquils, and the beautiful deep yellow flowers of the Jonquils were allowed to fall carelessly

WITHERING OF PLANE LEAVES.—I have no hesitation in stating that I believe Mr. Elwes is mistaken with reference to this matter. It is not fungus that is the first cause of injury to the leaf, but it is cold winds, rain, and hail storms—but chiefly winds. Both varieties he indicates are liable to be so injured, but the leaf of *P. orientalis* is tougher and smaller than that of *P. acerifolia* and therefore does not suffer so severely from wind storms. T. Challis, *Wilton House Gardens, Salisbury*.

FRUIT PROSPECTS FOR 1907.—I never remember (in my time of 15 years here as head gardener) seeing trees of all kinds look so promising. Apricots, Plums, Cherries, Damsons, Peaches, Nectarines, Pears and early kinds of Apples are covered with fruit buds—it is too soon to judge varieties of late Apples or Strawberries—but Currants and Gooseberries are full of flower. Birds have not been troublesome. The dry summer last year, and the short growth made by most trees, which was also well matured by the dry sunny weather, were all in favour of fruit bud formation. We have now to fear frosts which I hope will not be prevalent while the trees are in bloom. Another danger is that stone fruit may drop while stoning, owing to drought at the roots during the last summer or afterwards. A. J. Long, *Wyfold Court*. [Various correspondents write to the same effect, but the changes and chances are too numerous to allow of any safe prediction being uttered.—Ed.]

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

APRIL 2.—*Present:* Dr. M. T. Masters, F.R.S. (in the chair), Dr. M. C. Cooke, M.A., Messrs. Hans Güssow, G. Massee, H. J. Chapman, A. Worsley, W. Cuthbertson, H. J. Elwes, F.R.S., E. A. Bowles, J. T. Bennett-Poë, W. C. Worsdell, G. S. Saunders, and F. J. Chittenden (hon. sec.).

Botanical Certificates.—Dr. MASTERS reported on the plant shown by Mr. Bennett-Poë at the last meeting under the name of *Thibaudia* sp. (?). The plant proved to be a hitherto undescribed species of *Agapetes*, and the name *Agapetes speciosa* had been given it by Mr. Hemsley. On the motion of Mr. BOWLES, seconded by Mr. WORSDELL, a Botanical Certificate was recommended to this plant by seven votes to one on the ground of its novelty and botanical interest. [Our illustration (fig. 101, p. 237) shows that it is by no means devoid of attractiveness from a decorative point of view.—Ed.]

Narcissus from Chili.—Mr. WORSLEY showed the flower of a variety of *N. tazetta*, the bulb of which he had received from Chili, to which country it had evidently been introduced and had escaped. Mr. ELWES said that he had been struck by the large number of South European plants which had found a congenial home in various parts of South America.

Hybrid Vallota and Hippeastrum.—Mr. H. J. CHAPMAN showed a plant which was raised from seed produced from *Vallota purpurea* crossed with pollen from a purple-flowered *Hippeastrum*. The foliage was only just beginning to develop, and was stated to be very similar to the *Vallota* in appearance. The flowers were large and white, with a rather broad greenish median vein. About 200 seedlings of this cross had been raised, all of similar habit, and all but three bore scarlet flowers; the plant shown and two others, however, had white flowers. Mr. CHAPMAN promised to show the plant again when in full foliage. The reverse cross did not result in the production of any seed.

Pollen of Phaius Hybrids.—Mr. CHAPMAN observed that when two species of *Phaius* were crossed, the pollen of the resulting plant was infertile, but the hybrids produced seed when pollinated with pollen from either of the parents. The pollen of the hybrids resulting from these second crosses was fertile.

Colletia spinosa.—Dr. MASTERS drew attention to two plants of this species shown by Mr. Smith, of Worcester, which illustrated the great variation in the form of the spinous branches with which the stems are furnished. So great is the difference that the various forms had



FIG. 103.—NARCISSUS OPEN FACE: PERIANTH WHITE, CROWN FLAT, YELLOW TIPPED WITH ORANGE-RED RING. (See page 240.)

from the north and east winds. The following varieties were grown, and the percentage of failures is given: Sutton's Early White (about 1 per cent.), Snow's Winter White (about 2 per cent.), Carter's Spring White, Mammoth (about 2 per cent.), Standwell (about 3 per cent.), Leamington (none), Model (none), Satisfaction (1 per cent.). These eight varieties now look well, and we have been cutting good heads of the three first named. One important fact in Broccoli cultivation is to have the plants hardy and well seasoned, and this is best done by transplanting them early from the seed bed and allowing them plenty of room so that they do not become drawn, for Broccoli always winters best when it is sturdy and short. W. A. Cook, *Leonardslee, Horsham*.

JONQUILS AS POT PLANTS.—*Narcissus odorus* or Jonquils are so little used as pot plants that I think there must be many gardeners who are not aware of their value in this direction. We always grow a good batch each of two varieties

over and intermix with the Asparagus. The effect was admired by all who saw it. A. S., *Birmingham*.

AN IMPOSITION.—Many amateur and cottage gardeners are imposed upon by such swindlers as the one Mr. Douglas mentions on p. 211. Their plan is to occupy a place in a local market, with a few boxes of very finely-grown seedlings (Carnations), all of which have a special name and with the colour of the flower fully described. They readily dispose of the plants at from sixpence to one shilling each to inexperienced men, who cannot detect seedlings from plants raised from cuttings or layers. I had under observation last summer several dozens of these so-named plants, every one of which was a miserable single variety. Should any of these impostors appear in our market this year with their, so-called, named varieties, I can assure them of a lively reception. V. H. Lucas.

been described as distinct species under the names *Colletia spinosa* and *C. cruciata* or *bictonensis*, but Mr. Barnes, formerly of Bicton, many years ago pointed out to Dr. Lindley that one plant occasionally bore shoots of both types. The present examples illustrated this fact, proving that the two species were really one and the same.

Diseased Potatoes.—Mr. JOHN COUTTS, of Killerton Gardens, sent tubers of Potatoes he had received from a cottager, showing in some cases watery black marks throughout the flesh, and in others hollowed spaces. These appearances were recognised as due to the attacks of the winter rot fungus, *Nectria solani*.

Effect of environment of Primrose Leaf.—Dr. MASTERS showed drawings made by Mr. Chittenden of a Primrose leaf collected in Jersey, and sent by Mr. F. J. Hanbury. The plant was growing on rocks by the sea coast. It was of the normal length and breadth, but about a quarter of an inch in thickness, very fleshy, and showing many of the anatomical characters common to seaside plants.

Axile proliferation in Carnation.—Mr. G. REID, of Oxshott, sent a specimen of Carnation having a well-developed bud growing from the middle of the flower, a well-known phenomenon, frequently illustrated.

Numerous other specimens of diseased plants were received and reported upon.

and 3rd prizes respectively. The exhibitors mentioned were also successful in the smaller classes.

Roses in the amateurs' classes were shown in unusually good form, notably the stand of 24 blooms staged by Mr. ERNEST BEWLEY, to whom the challenge trophy valued at £15 was awarded. The best 24 bunches of flowers from the open came from the gardens of Captain LEWIS RIALI; 2nd, the Hon. Mrs. BARRY.

Trade exhibits.—Notable among trade exhibits were those following:—Messrs. HEATH & SON, of Cheltenham, staged Carnations; Messrs. ALEX. DICKSON & SONS, Newtonards, Co. Down, displayed floral designs and Roses. A large exhibit of Narcissi, including many of the rarer forms, was set up by Messrs. HOGG & ROBERTSON, Mary Street, Dublin; and another fine display of these flowers was shown by Sir J. GORE-BOOTH, Sligo. In the large concert hall Mr. F. W. MOORE contributed Palms from Glasnevin, the chief feature of a spacious tea garden presided over by Mrs. G. M. ROSS. Mr. ERNEST BEWLEY displayed foliage and flowering plants in a semi-circular manner around the orchestra, and for which he was awarded the Society's Gold Medal, the same honour being conferred on Messrs. ALEX. DICKSON, HOGG & ROBERTSON, HEATH & SON, and Sir J. GORE-BOOTH for their respective exhibits.

ing two remarkable specimens. Under the able management of the Hon. John Boscawen, hon. secretary of the society, the arrangements left nothing to be desired.

The best collection of 30 varieties of Daffodils in commerce.—1st Prize, Mrs. WALKER TYACKE, with a fine stand of the best varieties, large in size and very fresh, especially strong in the parvi-coronati section.

The best collection of 30 varieties of Daffodil, either in commerce or not.—This is always the most interesting class in the exhibition, as the stands invariably contain many new seedlings of exceptional merit. Mr. J. C. WILLIAMS staged a very fine collection, including Monarch, Lady Margaret Boscawen, Pilgrim, White Queen, King Alfred, Homespun, and 23 unnamed seedlings. Unfortunately, this stand contained 29 instead of 30 varieties, and was therefore disqualified, the 1st prize being awarded to Mr. P. D. WILLIAMS, whose stand included Hero, Jasper, Circlet, Bullfinch, Yvette, Horace, Alsace, Ibis, Peregrine, Blood Orange, Gulden, Antoinette, Cassandra, Fulgens, Juno, Chaffinch, Incognita, and Miss Mary. This stand was remarkable for the excellent condition of the flowers, and Horace and Peregrine were given Awards of Merit.

Numerous classes were provided for the various sections of Narcissus, among which we can only note the following:—

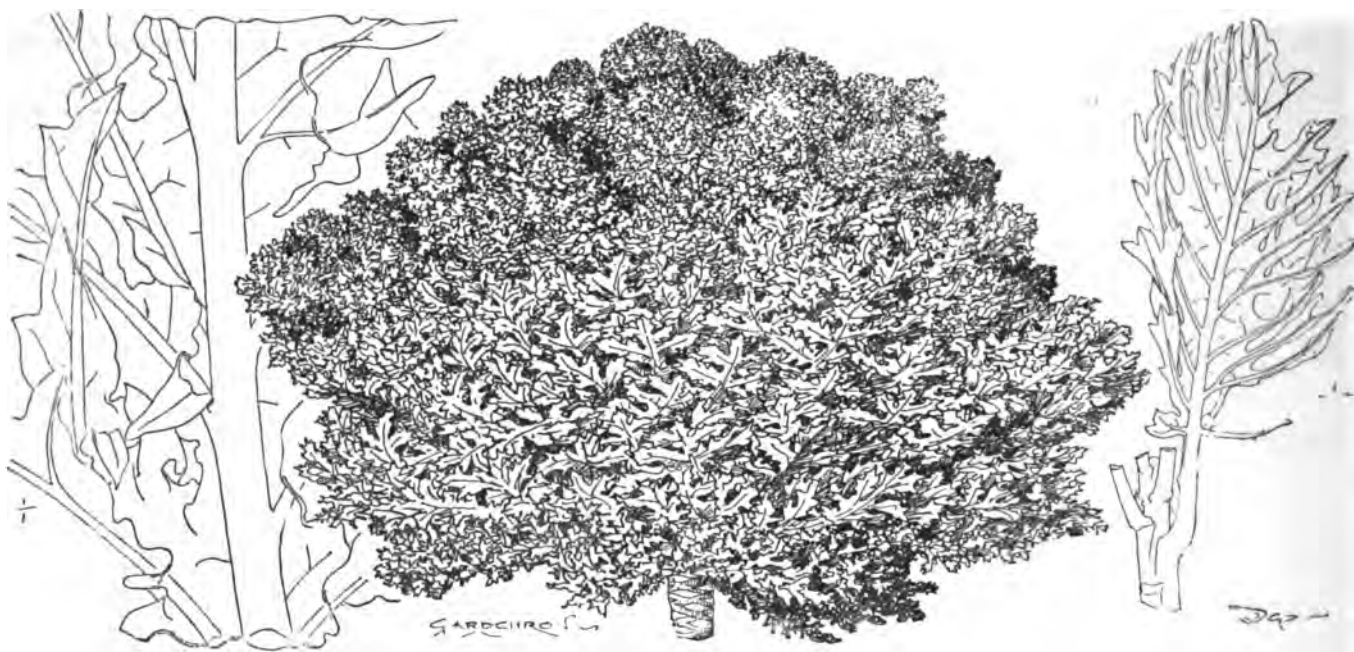


FIG. 104.—KALE "CHOU DE RUSSIE," AWARDED A FIRST-CLASS CERTIFICATE BY THE R.H.S. AFTER TRIAL AT WISLEY.

(See pp. 192-195 ante., also p. 240.)

ROYAL HORTICULTURAL OF IRELAND.

APRIL 4, 5.—The somewhat early dates, on which the spring show of the above society was held, in the Royal University, Dublin, seemed to suit the season of the Daffodil, large groups of which were staged in the entrance hall. The show, which was opened by his Excellency the Earl of Aberdeen, K.T., was a bright and attractive one, the numerous classes being generally well filled.

In the class for nine pot Roses, the premier prize of a challenge cup was won by H. S. GUINNESS, Esq., who also led in the class for the best table of foliage and flowering plants. The best display of Exotic Ferns was exhibited by Mr. W. V. WESTBY. There were, in addition, 20 classes for plants in bloom ranging from Azaleas to Narcissi in pots, and among the exhibits Mignonette was an especial feature. The principal prize for cut Daffodils was a challenge cup. This was offered for 50 distinct varieties, and was taken by C. M. DOYNE, Esq., Wexford; Mr. REGINALD T. HARRIS securing the 2nd prize. Mr. DOYNE also won the Barr Daffodil Cup offered for the best 30 varieties of Daffodils; and in this class Sir ROGER PALMER and Miss G. C. WHITE were awarded the 2nd

THE CORNWALL DAFFODIL AND SPRING FLOWER SOCIETY.

APRIL 5.—This society opened its eleventh annual show on the above date in the Market Hall at Truro. Owing to the bitter weather experienced during the past winter, it was thought that the exhibition would be a poor one, but, fortunately, these fears proved unfounded, the entries exceeding those of last year by thirty. Daffodils being very late this season, some varieties that usually grace the show-bench were missed, but a large number of beautiful flowers were staged, including many seedlings of exceptional merit, that were triumphs of the hybridiser's art.

Hard-wooded, flowering shrubs, in spite of the backward season, were present in greater numbers than ever before, the new class for Acacias producing some pretty exhibits. In the classes for hardy unforced spring flowers a great advance was made, there being 12 entries, all of high merit, many rare and beautiful flowers being exhibited, though, for the first time for some years, the New Zealand Forget-me-not, *Myosotidium nobile*, largely grown in this county, was absent. Among the new classes were two for cut Roses, one for species of Primula, and one for Rhododendron plants, the last produc-

ing two remarkable specimens. Under the able management of the Hon. John Boscawen, hon. secretary of the society, the arrangements left nothing to be desired.

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(Award of Merit), Red Eagle, white perianth, spreading, orange-scarlet cup, and Circlet.

Collection of 12 hardy spring flowers.—1st Prize, Mr. P. D. WILLIAMS, with *Caltha polypetala* (First-Class Certificate), *Iris Willmottiana*, *I. tuberosa*, *I. orchoides*, *Tulipa Fosteriana*, *Trillium californicum*, *Muscari Szovitzianum*, *M. Heavenly Blue*, *Chionodoxa grandiflora*, *Anemone blanda*, *Primula denticulata*, *Trillium californicum*, *Saxifraga ciliata*.

Collection of six hardy spring flowers.—1st Prize, Rev. A. T. BOSCAWEN, with *Fritillaria obliqua* (First-Class Certificate), and *F. verticillata*.

Anemones, *Primroses*, *Violets*, and other spring flowers were shown by various exhibitors.

Finest plant of *Rhododendron*.—1st Prize, Mrs. J. P. ROGERS, with *R. suave*, 6 feet across, a sheet of bloom.

Best group of *Rhododendron* blooms.—1st Prize, Mr. R. FOX, whose success was due to two perfect and enormous trusses of Pink Pearl.

Six cut trusses of *Rhododendrons*.—1st Prize, Mr. D. H. SHILSON.

Six cut trusses *Rhododendrons* under glass.—1st Prize, Mr. R. FOX.

Other classes were devoted to single trusses and to *Camellia* blooms.

Three vases *Acacias*.—1st Prize, Mr. C. HEXT, with *A. Drummondii*, *A. Riceana*, and *A. dealbata*.

Twenty varieties hard-wooded flowering shrubs.—1st Prize, Sir ARTHUR VIVIAN.

Six varieties hard-wooded flowering shrubs.—1st Prize, Mr. W. H. SPOTTISWOODE.

Mr. J. C. DAUBUZ and Mr. H. H. WILLIAMS exhibited collections of Apples not for competition; Capt. PINWILL contributed an interesting collection of flowering shrubs and herbaceous plants, including the curious *Euphorbia Wulfenii*. Mrs. H. COCK sent a large pan of *Cœlogyne cristata*, 8 feet across, in superb bloom; Mr. P. D. WILLIAMS was given an Award of Merit for a collection of *Primroses* and *Polyanthi*; Mr. D. H. SHILSON took an Award of Merit for *Rhododendron* Duchess of Connaught, and Mr. K. C. CHETWOOD-AITKEN a similar award for *Acacia pubescens*, while Mr. J. C. WILLIAMS received a Cultural Commendation for his disqualified stand of *Narcissi* and Mr. R. FOX was allotted the same for *Rhododendron* Pink Pearl.

TRADE EXHIBITS.

Nurserymen's exhibits were especially good, and added much to the display of floral beauty that brightened the great hall.

Messrs. R. VEITCH & SON, Exeter, whose stand was very highly commended, received First-Class Certificates for *Magnolia Soulangiana nigræ*, *Clematis montana rubens*, and *Nephrolepis todeoides*, and an Award of Merit for *Acacia cultriformis*. Among the plants staged were *Erica arborea*, *E. lusitanica*, *E. Veitchii*, *Doryanthes Palmeri*, *Correa cardinalis*, *Tricuspidaria dependens*, *Buddleia asiatica* (very fragrant), *Grevillea alpestris*, *G. sulphurea*, *G. rosmarinifolia*, and *Exochorda Alberti macrantha*.

The DEVON ROSERY, Torquay, had a fine display of pot Roses in full bloom, including *Souvenir de Gabrielle Drevet*, *Meta*, *Liberty*, *Mme. Chedane Guinoisseau*, *Mme. Ravary*, and *Earl of Warwick*, very highly commended.

Messrs. BARR & SONS showed a representative collection of *Daffodils*, included in which were *Peter Barr*, *Mrs. G. H. Barr*, *Princess Maud*, *Constellation*, *The Sisterhood*, *Dandy Dick*, *Golden Glow*, *Fairy Queen*, *Horace*, *Cassandra*, *Blackwell*, *Admiral Makaroff*, *Bridal Veil*, *Blood Orange*, *Calpurnia*, *Strongbow*, *Isolde*, *Duke of Bedford*, *Arriadne*, and *Monarch*. This stand was very highly commended, as was that of Mr. G. REUTHE, who showed a very interesting assortment of plants, among which were *Shortia galacifolia*, *Soldanella alpina*, *Orchis Robertiana*, *Erythronium purpurascens*, *Eriostemon myoporoides*, *Lithospermum rosmarinifolium*, *Chionodoxa gigantea alba*, *Calypso borealis*, *Fritillaria aurea*, *F. citrina*, *Bongardia Ranwolffii*, *Daphne Blagayana*, and *D. sulphurea*.

Messrs. CUTBUSH & SON were very highly commended for their stand, which contained *Iris Haynei*, *I. Susiana*, *I. Korolkowi*, *I. bucharica*, *Phlox amœna*, *Anemone alpina*, *Primula denticulata*, *Iberis gibraltarica*, *Antirrhinum glutinosum*, *Rhododendron Metternichii*, *Daphne Genkwa*, *D. altaica*, *D. gnidium*, *D. cneorum*, *Menziezia empetrifolia*, *Trillium Snow Queen*,

Andromeda polifolia alba, and *Bletia hyacinthina*.

Mr. ROBERT SYDENHAM received a Cultural Commendation for a collection of *Tulips*, *Narcissi*, *Hyacinths*, and *Lilies of the Valley*, grown in jars without drainage, in a compost of moss-fibre and pounded shell, a valuable method of culture where flowers are required for indoor decoration.

NOVELTIES.

The following is a selection of some of the more noteworthy from the newer seedling *Narcissi* shown:—

Homespun (Engleheart), a very large circular flower of "Princess Mary" form, uniform soft-lemon yellow, exceedingly solid and symmetrical. Probably the finest short-crowned yellow *Narcissus*. This appeared on several stands. (See fig. 102).

Mr. J. C. WILLIAMS showed several first-class novelties. In particular, No. 601, with the perianth white, very ample and shapely, the saucer eye of flame red with orange centre; No. 594, somewhat similar, but with crown of lighter orange; No. 593, an immense flower of the "Lady Margaret Boscawen" type, pearly white voluminous perianth, large, light yellow cup; No. 46c, a remarkable hybrid of triandrus, of soft lemon-citron, exquisite in refined colouring; No. 42b, a very choice ivory white Leedsii, apparently overlooked by the judges, medium-sized, quite circular and solid, with shallow crown.

Though not large, yet for excellence of form and colour a flower shown by Mr. P. D. WILLIAMS, and well named "Pure Gold," was, perhaps, the gem of the show. This evidently has triandrus blood in it, and resembles a small incomparabilis, but with long, slender tube. The entire flower is of pure and brilliant yellow.

Circlet (Engleheart) is a notably round and flat *Narcissus* of model form. Armored (Engleheart) is a flower of unusual but very attractive colouring. Perianth large and spreading, clear white; broad, flattened eye of salmon-orange, with velvety-green centre. Incognita is of much the same tones, but with more of apricot in the eye. The number of triandrus hybrids in the show, proves that raisers appreciate the refined quality given by this little species. There were also several good seedlings shown between *N. Tazetta* and *poeticus*.

The poeticus forms were scarcely in bloom at the date of the show, but a few good flowers were shown of Mr. Engelheart's varieties, such as *Horace*, *Cassandra*, *Herrick*.

Several good new Ajax forms were shown, especially by Messrs. J. C. WILLIAMS and P. D. WILLIAMS, the latter gaining the 1st prize for this class with a very shapely and well-coloured yellow trumpet.

Obituary.

NEIL GLASS.—This well-known Scotch gardener, who for nearly 40 years was in the service of the late J. C. Bolton, Esq., of Carbrook, Larnbert, passed away on the 7th inst., in his 78th year. Deceased was a type of the rugged Scotch gardener, thorough in all his ways and studying in all things the interests of his employer. He was a keen competitor at the Edinburgh and Glasgow Horticultural Shows, and was a noted cultivator of vegetables. He retired from active service about three years ago, and at the time of his retirement he received from a large number of his friends a token of the great respect in which he was held. R. L.

SIR FREDERICK W. WIGAN, BART.—It is little more than a month since we recorded the death of Sir Frederick Wigan, an enthusiastic cultivator of Orchids at Clare Lawn, East Sheen, and now the death is announced of his son and heir, Sir Frederick W. Wigan, at the age of 48 years.

LEO FARMAR.—The death, by suicide, is announced from Southsea, of Mr. Leo Farmar, a young man (23 years) who at one time was an assistant in the Royal Botanic Gardens, Glasnevin, which place he left in order to go to the Royal Gardens, Kew. Deceased, who has occasionally contributed to these columns, was employed on the herbarium staff at Kew for several years, in the capacity of preparator. He left Kew in January, 1906, and accompanied as botanist an expedition

sent out under the auspices of the Liverpool University to the French and West African Colonies. A note on this expedition appeared in the *Journal of the Kew Guild* for 1906. He was to have joined an expedition to Africa, arranged by Sir Alfred Jones, for the purpose of investigating the cotton-growing possibilities of that country.

ENQUIRIES AND REPLIES.

Will some reader oblige me with hints as to the cultivation of South African *Droseras*, such as *D. capensis*, *hilaris*, and *spatulata*? F. D.

STANDARD BAYS.—Can any reader explain why Standard Bays, after doing well for a year or so after purchase, commence to "bark" up the stem and branches, and the foliage to die? I have potted them in good loam, also loam and peat. They are well protected in the winter under a shed, and the stems are wrapped with haybands. They have not been dry at the roots. H. T.

Can any reader inform me of any special plan for making a pond to hold water? The one in question was filled last autumn from a water company's mains, but is now nearly empty, and we propose to clean it out and well puddle it for a depth of some 6 inches with clay of a greasy and adhesive texture. Will this be likely to prove effectual, concreting being out of the question? W. J. G.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

CAPITAL FOR COMMENCEMENT OF A BUSINESS:

Starter. There are two ways open to you to start in the business of growing Cucumbers and Tomatoes for market. The first is to rent an acre or so of ground, on which there are half a dozen or more low, narrow, well-heated glasshouses suitable for growing Cucumbers in. See that the houses are in good order before taking them on a lease for three years with the option to renew the lease for seven or fourteen years on the same terms at the end of three years. Your present capital (£100) would enable you to do this, and with good cultural management and hard work, perhaps place you in a position to purchase an acre or more of ground and erect thereon a few glasshouses at the expiration of three years. Or with the amount of additional capital which you can command you could purchase the land and erect from four to six Cucumber houses on it, the number of houses being determined by their length. Houses from 100 to 150 feet long and 12 feet wide are of suitable length the latter length being preferable where the shape and run of the ground will permit. A No. 2 horizontal, tubular or sectional boiler (Robin Hood, Quorn, White, Rose, &c.), capable of heating 3,000 feet of 4-inch pipe, would efficiently heat a block of six Cucumber houses 100 feet long and 12 feet wide each, or four houses of 150 feet by 12 feet, but the first-mentioned heating apparatus is generally used in the heating of commercial glasshouses. All do the work required of them thoroughly when properly set and stoked. Four rows of pipes should be fixed in each house. You cannot do better than put yourself in communication with a good horticultural builder and hot-water engineer, who has a reputation for the building and heating of glasshouses suitable for the production of Cucumbers and Tomatoes for market, stating what you desire, and what is your financial position. You should, however, retain one-third of the capital at your command for working expenses. One man who knows his work and is quick about it would manage the above-mentioned blocks of houses planted with Cucumbers (600-feet run), if occasional help is afforded when the plants are in full growth in preparing and wheeling in soil for top-dressing the ridges as soon and as often as the roots push through the mould. A man who is young and strong and working for himself can get through a lot of work during the interval elapsing between sunrise and sunset in April and five

following months. We may add that it is desirable to select a situation in a good, central district, and near to a railway station, and where a fairly good supply of water is obtainable. In the event of having to send your produce to Covent Garden Market, the Great Eastern Railway Co. afford specially cheap rates for the transmission thither over their system, of produce grown in the eastern counties, and also for the conveyance of manure thereto from the metropolis—advantages which should have due consideration by anyone thinking of embarking in the business of market gardener. In erecting a block of any number of Cucumber houses only outside and end continuous walls are required, the rafters of the intervening houses resting on plates attached to valley gutter boards, supported by 9-inch brick piers built at intervals of about 7 feet, the outside walls consisting of 4½-inch work with 9-inch piers 8 feet apart, and built flush with the inside line of work, the piers showing on the outside affording support against lateral pressure. The walls and piers, it is almost needless to say, should be on the same level lengthwise and crosswise, and be 2½ feet high (including plating) from the ground line with 7½ feet rafters, thus affording low, narrow houses in which there will be no difficulty in maintaining during severe weather a minimum atmospheric temperature of 70° in each and all the houses included in the block, with four rows of 4-inch pipes in each, two flows running alongside the piers and the returns on either side the pathway, a throttle valve being fixed in each branch flow pipe forming the connection between the bend leading from main into branch flows for regulating the circulation and due distribution of hot water in the pipes in each and every house constituting the block. Two good underground tanks should be built right across the several houses—one at the bottom (lowest end), and one in the middle, for the reception and storage of rain-water, the tanks being built on the batter in 4½-inch work and cemented throughout, inlets from glass roofs being provided, as well as overflow pipes. It will be necessary to erect a small house for raising the Cucumber plants in, with a sunken pathway and 7½-foot rafters springing from wall plates resting on walls 12 inches high, walls built and heated as described above. A No. 1 4 feet 6 inches long, horizontal tubular boiler, having a heating power of 750 feet 4-inch piping, will be required to heat this house. Or you might find it convenient for the first year or two to get an established grower (should there be one living within a mile or two of the site of your place) to raise the plants for you at a small cost per 100, being careful to obtain seed of a good strain of the Rochford Market or Covent Garden favourite type. You must bear in mind that even the best private gardeners have a good deal to learn when they commence market-work, even in the growing of Cucumbers for profit, and yielding quick returns, a fact which is of great importance to the man with a small capital. Cut flowers, such as Yellow Marguerites, Sweet Peas (white, pink, crimson, and mauve), Sweet Sultan, Statice and Chrysanthemums also yield quick returns, and therefore should be grown on available land. These details may be of use to you and other readers of the *Gardeners' Chronicle* who may contemplate going in for market cultivation. There is plenty of available land in the Rochford and Rayleigh districts of Essex.

COVENT GARDEN SALESMEN: A. H. R. There are many firms in Covent Garden flower market who receive flowers to sell on commission, but at the present time supplies are very abundant. We were told on Wednesday morning by some commission agents that they had written to tell senders of some sorts of flowers to discontinue as the market was overloaded. All consignments should be sent carriage paid, and a paper in each box, with the name of the sender, and the contents stated. Among the established salesmen are Messrs. Page and Saunders, Mr. Newton, Mr. D. Ingamells, Mr. Miles, Mr. Gay, and Mr. A. Bird. There are also several others, including Messrs. Monro and Messrs. Collingridge, Mr. Frederick End, &c. A letter addressed to any of these agents at Covent Garden, London, W.C., will be delivered.

FIGS DISEASED: R. W., Leeds. The injury appears to be due to fungus disease, *Cercospora Bolleana*. Burn any leaves or fruits that show signs of the disease, and spray the remaining ones with liver of sulphur, ½ oz. to a gallon of water.

FRUIT CULTURE: C. F. If, as we gather, you know nothing about the industries you mention, we can only recommend you to study for some two years or more at Reading College, the R.H.S. garden, at Wisley, or some similar institution, and then to enter some fruit-nursery for some months to learn the routine.

GARDENING IN THE COLONIES AND AMERICA: G. N., A. S., and others. We have nothing further to add to the information afforded by Mr. Harry Bunyard on p. 191. You may write to Mr. Bunyard at the address given. Gardening in colonies that are only partially developed is chiefly of a commercial kind, for it is only in the big cities and more settled parts of a new country that much attention is given to private and pleasure gardening. Much useful information about Canada and its value as a field for emigration can be obtained free from the Agent-General for the colony, whose address is 17, Victoria Street, London. There is also a general Government Emigrants' information office, 81, Broadway, S.W. As a rule it will be found that success after emigration will depend upon the ability of the emigrant to adapt himself to conditions to which he is unaccustomed, and to his willingness to undertake, if needs be, work of a somewhat different nature to that he discharged before emigrating.

GOOSEBERRY CATERPILLARS: E. T. D. The common Gooseberry caterpillar (*Abraxas grossularia*). Spray the plants with an arsenical poison, such as Paris Green or London Purple, at this season, but not when the fruits are nearing the ripening stage.

GRAPES FROM SOUTH AFRICA: Wood & Co., Provision Merchants, Cape Town. The box of Grapes sent us through Messrs. Garcia, Jacobs, & Co., Covent Garden, were in a satisfactory condition and bad berries were not numerous. The flavour, a pronounced Muscat, was good, the berries were large enough to constitute a good sample, and the quality was much better than that of the ordinary type of Cape or most of the Colonial Grapes sold in the fruiterers' shops. We suggest, however, that they were packed a trifle too green, for the few berries that were amber-coloured and riper were much the better flavoured. To send them in a riper condition would necessitate the use of a finer and softer wood-wool as a packing material, but as the coarser material is more elastic this could be used to line the case in the first instance. If a regular supply of such Grapes could be sent to the English markets during the early months of the year, when home-cultivated fruit is exceedingly scarce, no fear need be entertained as to their not meeting with a good demand.

HYACINTHS: W. C. The flower-spike has been growing too fast in proportion to the scales, so that it gets nipped by the scales of the bulb which do not separate as they should to let the spike through. It is not uncommon, but it is difficult to suggest a remedy. Cases have been more frequent than usual this season, which may be due to the extra warm weather in the last week of March.

MILDEW ON VINES: J. S. This fungus generally appears as the result of a cold, moist atmosphere, or of draughts, and as the vinery has been used for bedding plants we suspect the watering of these has had something to do with the appearance of the mildew. You have applied sulphur to the pipes but this needs care, and should be done when the atmosphere is very dry, and at sunset. Mix a quantity of sulphur with some lime-wash, and apply it to the pipes when they are very hot, but do not let the atmospheric temperature in the vinery exceed 82°. Keep this high temperature for about two hours, and gradually lower it and afford a little ventilation. Repeat this on two or three evenings, and ventilate rather freely on the following days.

ORCHID "SPOT": J. B. The specimen of *Dendrobium densiflorum* sent is affected with the well-known "spot" or Orchid disease. It appears more often in what are known as evergreen *Dendrobiums* than in those which lost their leaves during a resting season, which, in

their case, is duly observed. The evergreen varieties do not show by the leaves turning yellow that they require a cooler and drier resting period, and consequently they are too often kept in much heat all the year, and disease, similar to that shown on your specimen, is the result. Give this section, in future, a reasonable resting period when the bulbs have matured each season.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.*

PLANTS: H. V. Both forms of *Cupressus Lawsoniana*.—L. G. P. *Lavandula Stoechas*, a common plant in the Mediterranean region, sometimes called in England the greenhouse Lavender.—C. S., Glasgow. *Selaginella rupestris*.—G. L. F. *Gagea lutea*.—R. C. should address such questions to the editor and not to the publisher. 1, *Primula verticillata* var. *simensis* (not *sinensis*); 2, *Lopezia racemosa*.—M. M. A very fine variety of *Odontoglossum Rossi majus*.—V. O. 1, *Oncidium cheiroporum*; 2, *Oncidium ornithorhynchum*; 3, *Masdevallia trianstellata*.—W. H. C. It is very difficult to name *Codiaeums*, or *Crotons* as they are called, from leaves, the variation on the same plant, as shown by some of your specimens, being very considerable. 1 appears to be *C. pictum*; 2, *C. Mortii*; 3, *C. Evansianum*; 4, *C. trilobum*; 5, *Cordyline (Dracaena) Baptistii*; 6, *Cordyline (Dracaena) terminalis*.—E. C. C. D. *Chlorophytum elatum variegatum*. A liliaceous plant, allied to *Anthericum*. It is grown in greenhouses and stoves, for the sake of its long, narrow, but rather thick leaves, which are green and white.—T. O. J. You send more than the number of specimens allowed, and it is against our usual practice to attempt to name varieties of florists' flowers. A donation for the Gardeners' Orphan Fund would be appropriate. 1, *bicolor* Empress; 2, *incomparabilis* Sir Watkin; 3, *incomparabilis* Stella; 4, *incomparabilis*, a discarded variety; 5, *Leedsii* Duchess of Brabant; 6, *Barrii* Orpheus; 7, *Burbidgei* Baroness Heath; 8, *poeticus* ornatus; 9, *Henry Irving*; 10, *Leedsii* Palmerston; 11, *Johnstoni* Queen of Spain; 12, *Tazetta*, common Mediterranean species. The two unnumbered are *Burbidgei* John Barr and R. Barr.—T. W. *Gerbera Jamesoni*. Some improved hybrids of various colours are obtainable, and you would do well to procure them.—F. R. 1, *Dendrobium chrysotoxum*; 2, *Erythronium dens-canis*; 3, *Pulmonaria officinalis*; 4, *Acacia armata*; 5, *Scilla siberica*; 6, *Scilla bifolia*.—X. Not *Abies Nordmanniana* but *A. Pindrow*.

PELARGONIUM LEAVES: B. P. The spotting is probably caused by excessive moisture and deficient ventilation. No fungus is present.

SWEET WILLIAM DISEASED: E. H. The plants are badly infested with a fungus disease, *Puccinia Dianthi*. Burn the entire stock of seedlings, and spray any Carnations or Pinks growing near them with liver of sulphur, using half ounce to one gallon of water. Perhaps it is by means of these last-named plants that the disease has been transmitted. Next year's batch of seedling Sweet William should be sprayed with liver of sulphur at intervals.

VINE WEEVIL: A. A. The specimen is one of the commonest of the weevils. Trap them with slices of some vegetable, such as carrot or potato. They are best caught at night time, for they feed in the dark.

COMMUNICATIONS RECEIVED.—H. M. V.—E. J. A.—W. E. B.—F. M.—S. W. F.—T. Lewis—T. Humphreys—W. Watson—H. F. McE. (Ceylon).—Director, Kew (many thanks).—J. Mc. (next week).—G. F. Mc.—C. R.—J. C. W. J. M.—Chloris.—W. A. C.—G. and G.—D. R. W.—F. M.



THE Gardeners' Chronicle

No. 1,060.—SATURDAY, April 20, 1907.

CONTENTS.

Agapanthus as a garden-plant ...	256	Meteorology in relation to horticulture ...	254
Alpine garden—	256	Mistletoe on Lime ...	257
Chionodoxa "The Queen" ...	249	Narcissus dubius ...	246
Books, notices of—		Obituary—	
Greenhouse and Conservatory Construction and Heating ...	247	J. Hill White ...	260
Studio Year-Book ...	253	Palm, hardy ...	254
The Principles of Horticulture ...	247	Pæonies, a field of, in Japan ...	258
Calceolaria, the genus ...	254	Plant notes—	
Caltha, the double-flowered ...	256	Begonia Limminghei ...	247
Carbon-assimilation by plants ...	254	Primula alba-plena ...	247
Carnation impostors ...	256	Plants, new or noteworthy—	
Dahlias, grafted ...	254	Strobilanthes Micholitzii ...	246
Dresden and Mannheim, exhibitions at ...	253	Plum and Peach hybrid ...	255
Foreign correspondence—		Pruning, experiments in ...	248
Eryngium proteaeflorum ...	248	Pruning of fruit-trees ...	256
Fruit plantations, spring work in ...	245	Societies—	
Fruit register—		Devon Daffodil ...	259
Apples, late keeping ...	246	Manchester and N. of England Orchid ...	260
Genetics, the recent conference on ...	263	Royal Horticultural ...	257
Law note—		Spring-flowers ...	256
Workmen's Compensation Policies ...	255	Tree-Pæonies in pots ...	257
Lilac culture in Germany ...	254	Trees, pigmy ...	258
Linnaeus anniversary ...	253	Vegetables—	
Long service, a gardener's ...	255	Early Cauliflowers ...	246
Mallows, hybrid ...	254	Week's work, the—	

ILLUSTRATIONS.

Bees, feeding, with syrup ...	251
Eryngium proteaeflorum, plant of 248; inflorescence ...	249
Flowers and foliage of a hybrid raised from Plum and Peach ...	256, 257
Narcissus dubius ...	246
Pæonies, a field of, in Japan (Supplementary Illustration)	258

SPRING WORK IN FRUIT PLANTATIONS.

A GENERAL SURVEY.

WHAT a blessing it is that birds have hardly touched a Plum bud this season! Last year, after a mild winter, they played havoc with trees on the outside of my Plum plantation, eating both fruit and leaf buds wholesale, and to an extent quite deforming the trees attacked. Now, on April 8, the leaves are expanding, and the blossoms are on the point of coming out on some varieties, Monarch, my latest for fruit ripening, being first, or about abreast with Black Diamond, as usual. The trees are now safe against birds, although they have not been sprayed. So are Gooseberry bushes in all but a small piece of land near the homestead, where they were attacked about the middle of December, but not again after they were sprayed with lime, sulphur, soft soap, and caustic soda. The rest were sprayed on January 18 and 19, as a slight attack on some outside bushes was noticed on the 17th. No damage has been done since. Last season the injury to the bushes from bud-eating birds was very serious.

It would be interesting if other growers of Plums and Gooseberries would relate their experience as to bud-eating birds during the present season. If the exemption noticed above has been common where no spraying has been done, any suggestion as to its probable cause would also be interesting.

SPRAYING.

As the birds left my Plum trees alone, the expense and trouble of spraying them with a preventive wash have been saved. Almost every day since the leaf-buds began to swell the trees have been examined in order to see if the aphid has appeared. The viviparous females are about due, and it is important to spray them before they reproduce their species; for, if they are not destroyed, their young will soon be swarming over the trees, safely ensconced in curled leaves. Only a solitary specimen has been found at present; but it seems too much to hope that there will be an exemption from aphid attack, as well as from bud-eating.

Apple trees have been sprayed recently, just before the fruit buds burst, with 4 lb. of copper-sulphate to 100 gallons of water, as a preventive to scab. When the blossom has fallen a second spraying will be given, Bordeaux mixture being used; and a third will follow a fortnight later. Scab, as well as the aphid, did an enormous amount of damage in my plantations last year.

If the aphid or the Apple-sucker, or both, should appear, both Apples and Plums will be sprayed with Bordeaux mixture and paraffin, the former as a preventive to scab in Apples and leaf-blight in Plums, and the latter to kill the aphid and the Apple-sucker. As paraffin emulsifies with Bordeaux mixture, the combination should be a safe one, or as safe as any effective spray-stuff is, absolute safety being out of the question. Only two gallons of paraffin will be included in a hundred gallons of the wash for use when the foliage is tender, and possibly three gallons when the leaves are fully expanded, if any seems to be needed then. Mr. Walter Collinge used as much as six gallons in a hundred in his paraffin emulsion last year, with only slight damage on a second application to Plum trees—"really nothing worth noting," he says. But I am very apprehensive of the action of paraffin on foliage. If I sprayed for the insects alone, I should prefer a wash composed of 12 lb. each of soft soap and quassia to 100 gallons of water.

Where caterpillars are troublesome, 3 lb. of arsenate of lead should be added to the 100 gallons of wash, if they put in an appearance, or, in any case, after the blossom has fallen, if the Codlin moth caterpillar is usually present in the plantation. In my isolated situation the pest last named has not been encountered.

SPRING PRUNING.

The advantage of leaving newly-planted Apple trees to be cut back at the beginning of April has been obvious when the work was done. As the buds were on the point of bursting, it was easy to select the most vigorous pointing in the right directions to be left just below the cutting, and to detect

the fruit buds, which are not all obvious on young trees of some varieties when they are entirely dormant. Nicely branching Golden Spires were found in many cases with fruit-buds developing all along the shoots of last year's growth, and these had to be cut back nearly to the stems, to get down to leaf buds.

One row of trees of the Lord Grosvenor variety, has been left not cut back, in order to notice the results of deferring the operation until the second spring after planting. Not being a believer in the advantage which some growers claim for this plan, I expect to find the growth of this row less satisfactory than that of the two rows of the same variety on either side of it.

STOCKS OF TREES.

Particularly noticeable is the superior growth of young trees budded or grafted on the crab-stock to that of those which were raised on the Doucin, taking the same varieties into comparison. The former are admirable specimens of well-furnished two-year-old trees, with fairly long and sturdy young branches, while the latter, particularly in cases of not very free-growing varieties, have shorter and more slender branches, less regularly and suitably placed. Lane's Prince Albert, for example, on the crab has strong growths sufficiently upright in direction, while on the Doucin its growths are of a spikey character, mostly pointing either horizontally or even downwards. Experience convinces me that the crab is the stock for trees in my fields, as those on the Paradise do not make enough wood, but tend to fruit prematurely and excessively. The Doucin was tried as an intermediate stock, but the crab will be used for the future, except for cordons, for which the Paradise will be used.

The superiority of Quince to the Pear stocks for cordon Pears is another subject of observation. The trees on the Pear stocks were not intended for cordons, but, as they seemed likely to develop fruit-spurs well from close to the ground level, some of them were planted as maidens last autumn. Not one will blossom this year, whereas nearly all the maidens on the Quince stock are showing blossom buds.

GRAFTING.

The grafting of Apple stocks is now finished. To cover the grafts, the good old mixture of clay, cow dung, and finely-cut hay chaff was chiefly used. For stocks grafted close to the ground, it seems to me preferable to grafting wax. On the whole, it gives less trouble than wax, which has to be prepared in the first instance, and heated afresh on each application. It costs practically nothing, whereas wax is expensive. As for wax that can be used without heating, it is easy enough to put on, but very troublesome to get off.

DEVELOPMENTS.

This season has been pronounced a very backward one for fruit development. It was so until after the middle of March; but the splendid weather of the last eleven days of that month and the first few days of April brought vegetation forward so rapidly that all kinds of fruit are at least as forward at the time of writing as they were a year ago. *A Working Grower, Sussex.*

NEW OR NOTEWORTHY PLANTS.

STROBILANTHES MICHOLITZI. *N. Sp.**

This is a pretty little half-shrubby plant, with lanceolate leaves, and axillary racemes of white flowers arranged in white cones of rounded bracts. The abundant bracts give it a remarkably pretty appearance, and it is well worth cultivation. It is a native of Sumatra, where, on the east coast, Mr. Micholitz discovered it. This charming plant seems rather difficult to cultivate, as it has somewhat of a habit of dying away after flowering; but this will doubtless be obviated by Messrs. Sander, of St. Albans, who have the plant in cultivation.

It is a half-shrubby plant, 3 or 4 feet in height; stem four-angled, dilated at the nodes; leaves opposite, 6 inches long 2 inches wide, but one much larger than the other, lanceolate or ovate-lanceolate acuminate at both ends, crenulate, nerves six pairs ascending, scabrid, hairy along the nerves, beneath pubescent, hairy, petiole 1 inch long. Racemes axillary strobili-form, short peduncled, very numerous, $\frac{1}{2}$ to eventually $\frac{3}{4}$ inch long. Bracts rounded with a cuneate base, upper edge recurved, white tipped with green, $\frac{1}{2}$ inch long, $\frac{3}{4}$ inch wide, scabrid, at length glabrous. Flowers shortly projecting from the cone, white. Calyx base shortly tubular above, split into six linear acuminate unequal lobes, narrow, glabrous, with a mucro-like trichome projecting from the top of each. Corolla shortly funnel-shaped, lobes rounded, lower lip a little longer than upper one. Stamens projecting, four, filaments slender, much longer than the corolla, anthers oblong. Capsule ovoid, not stalked, with a tuft of hairs at the tip. *H. N. R.*

NARCISSUS DUBIUS.

THE neighbourhood of Montpellier is rich in Narcissus. On the edges of the ditches and the small streams the Tazetta Narcissus is especially abundant. It is also found in damp meadows, frequently in company with *Narcissus poeticus*, and crossing with this species yields interesting natural hybrids that a little while ago were introduced into trade under the name of "Poetaz." These hybrids are not rare in the fields of Lattes, situated some miles from Montpellier.

In my opinion, the most interesting of them all is the *Narcissus dubius* of Gouan. This is a Tazetta in miniature, with small, creamy-white flowers, of a delicate perfume far less penetrating than that of Tazetta. Instead of preferring moist situations, it is found only in calcareous and dry soils fully exposed to the sun. It grows near *Cistus Monspeiliensis* and *Cistus albidus*, *Genista scorpiurus*, *Helichrysum Stœchas* and other plants in dry and sunny ground. It should be possible, given suitable conditions, to cultivate it in England. It must not be forgotten that the climate of Montpellier is decidedly cold in winter. Rarely does a year pass when the thermometer does not, on several days, fall to 10° C., or even lower (14° F.).

This Narcissus, if planted in calcareous soil, in a dry and sheltered position, and allowed complete rest from the end of summer to February, certainly might be grown in England.

**STROBILANTHES MICHOLITZI*, *Ridley sp. n.*—*Suffrutescens* tripetalis; caule quadrangulati nodis incrassatis; foliis oppositis uno majore, lanceolatis vel ovato-lanceolatis acuminatis, crenulatis 6 poll. longis, 2 poll. latis scabridis superne hirsutis, petiolo pollicari; racemis axillaribus strobiliformibus breviter pedunculatis, plurimis $\frac{1}{2}$ — $\frac{3}{4}$ pollicis longis; bracteis rotundatis albis apicibus recurvis, viridibus; floribus breviter protrusis albis; calyce basi tubulato superne fissis, lobis 6 linearibus acuminatis inaequalibus; corolla breviter infundibuliformi, lobis rotundatis; staminibus, 4 protrusis, filamentis corolla longioribus, antheris oblongis; capsula ovoides haud pedicellata. Sumatra in ora orientali (Micholitz). *H. N. Ridley.*

If any of your readers care to make the experiment, I shall have some bulbs to offer them in exchange next autumn. *F. Denis, Balaruc les Bains, Hérault, France.*

[This Narcissus is figured in Parkinson's *Paradissus*, Moggridge's *Contributions to the Flora of Mentone*, plate 71 (1871), as well as in Burbidge's *Narcissi*, plate xxviii., and Coste's *Flore descriptive*, tom. 3 (1895), n. 3,555. From Moggridge's *Contributions* we cite the following interesting note:—

"*Narcissus dubius*, Gouan, is one of the grateful exceptions to the rule among *Narcissi*, for it is found in wild, rocky situations in the mountains near Toulon and Hyères, and never, as far as I know, in cultivated ground."

Mr. Moggridge remarks that the plant is very variable, and adds: "I would suggest to experimentalists that a series of observations, noting the character of seedlings from the earliest and the latest flowers of individual plants, might lead to interesting and valuable results. To make the experiments complete, both the first and the last flowers should be fertilised with pollen from a distinct individual of the same species, and should be protected from insect agency. *N. dubius*, Gouan, is not found in

of very good shape, and well coloured. - The dish of Wagener looked as if it would keep for a long time. This is a rare Apple in Cornwall; such a valuable late kind should be given a trial wherever possible. Blenheim Pippin had just begun to shrivel. The fruits of Lord Hindlip were both highly coloured, and sound. The dish of Beauty of Kent was of good size and finish, but just beginning to show signs of decay. Other noticeable dishes were Dumelow's Seedling, Alfriston (very large fruits), and Bess Pool.

From Pencalenick, H. H. Williams, Esq., sent 11 dishes of very firm, sound Apples, all of good form and very clean skin. The most conspicuous were Adams' Pearmain, Allen's Everlasting, Bess Pool, a medium-sized angular fruit, very brightly streaked with red, Boston Russet, very highly coloured, Old Nonpareil, Scarlet Nonpareil, and Sturmer Pippin. *A. C. Bartlett.*

APPLE "ONTARIO."

THERE is probably no cooking Apple cultivated that retains its freshness, firmness, and exquisite flavour after being cooked as this variety does through the months of April and May. It is also a constant and prolific bearer, and is adapted for any method of training. *T. Challis, Wilton House Gardens, Salisbury.*

LATE APPLES.

I ENCLOSE a fruit of each of the Apples mentioned by me on p. 223:—Bramley's Seedling, Mère de Ménage, Newton Wonder, Lane's Prince Albert, Annie Elizabeth, Tibbet's Pearmain, Blenheim Pippin, Dumelow's Seedling, and Beauty of Kent. *W. H. Collett, Huntsham Court Gardens, Devonshire.* [These were good specimens, and in appearance as fresh as they could have been in October.—ED.]

VEGETABLES.

EARLY CAULIFLOWERS.

IN order to have a good supply of Cauliflowers to follow the spring Broccoli, a sowing should be made at the end of August and another at the middle and end of September. These sowings should be made on good soil and in an exposed position, so that the plants will be robust. When the seedlings are far enough advanced for transplanting, they should be planted singly in firm ground where they will winter. By the time they are ready for transplanting, it will be seen which of the three sowings is best suited for the purpose. They should be planted in firm soil on a border and where cold frames or some temporary shelter can be placed over them if necessary. I believe in planting some in cold frames and others on an open plot which is protected from cutting winds. Our exposed plants this season have withstood the weather well and are as sturdy as could be desired, and can now be shifted without fear of being cut down by spring frosts. Plants that are raised and grown in heat suffer most in this respect. Good varieties for winter work are Sutton's 1st Crop, Magnum Bonum, Purity, Universal, and White Queen. As its name implies, 1st Crop is the earliest and is often ready for use before the Broccoli is finished. This Cauliflower requires using as soon as it is fit, otherwise it loses colour and soon opens and becomes unfit for the table. Magnum Bonum, which follows, is very fine and is available for a considerable time. Carter's Mont Blanc is another good Cauliflower; its "head" is well protected by foliage and the vegetable lasts a considerable time in good condition. It is particularly suitable for a heavy soil. Carter's Forerunner is an early variety of first-class quality, and one of the best for spring sowing. Carter's Extra Early Autumn Giant is useful to fill up the gap between very early and late varieties. It is more compact and a month earlier than the old Autumn Giant, and is a capital Cauliflower to withstand the drought. *W. A. Cook.*



FIG. 105.—*NARCISSUS DUBIUS*, NATIVE SPECIMEN: FLOWERS CREAM-COLOURED.

Italy or along the Riviera; but from Mount Coudon to the westward, at Marseilles, Avignon, Pont du Gard, and Bione, in Hérault (Gren. et Godr.), Aix, in Provence (Herb. Gay!), in Corsica, at Ajaccio (Bourgeau!), near Mont Cada about 21 miles north of Barcelona (Bourgeau! in Herb. Gay; this label and that of the preceding specimen being written by M. Gay), Pyrenees, and Greece (Nyman).—ED.]

FRUIT REGISTER.

LATE APPLES IN CORNWALL.

TWO meritorious exhibits of Apples were made at the Cornwall show held at Truro on April 5th. J. C. Daubuz, Esq., sent from Killiow, West of Truro, 35 dishes. Cornish Aromatic is a variety which, although considered by growers in the home counties to be of second quality, is justly esteemed in Cornwall, where it usually bears well. It is a good-flavoured, angular fruit, of medium size, streaked with russet, and one that keeps well; probably in the more eastern counties this variety misses the abundant moisture of Cornwall. Newton Wonder was represented by fine fruits, and Bramley's Seedling was also

NOTICES OF BOOKS.

GREENHOUSE AND CONSERVATORY CONSTRUCTION AND HEATING. By Paul N. Hasluck. Cassell & Company, Limited, London.

This small work consists of 160 octavo pages, half of which number is occupied with engravings and diagrams of various kinds of horticultural erections with sundry methods of glazing, and numerous kinds of heating apparatuses, advertisements and index. The contents are embodied in nine chapters, in which the following subjects are dealt with:—The Principles of Greenhouse Construction, Horticultural Glass and Glazing, Lean-to Greenhouses; Lean-to Conservatories; Span-roof Greenhouses, Dome-roof Conservatory; Conservatory and Verandah, Window Conservatory, Heating Greenhouses. Details in the preparation and fixing together of all portions of woodwork necessary for the erection of various kinds of conservatories, greenhouses, &c., are given and freely illustrated. Elementary instructions as to the cutting of sheet glass, and the fixing of the panes in the woodwork, with and without putty, are given and illustrated at pages 13 to 20. A chapter on heating occupies fifty-one pages of letterpress, in which are included seventy-eight illustrations and diagrams of boilers, &c., but out of the sixty-six heating apparatuses illustrated, such well-known and efficient boilers as the Thames Bank horizontal tubular, the upright tubular, the Robin Hood and others are not included. In this chapter many useful and practical hints are given regarding the most suitable kind of boiler to be used for the heating of glass structures of various shapes and dimensions, and on the making of joints in hot-water pipes, but we cannot agree with the author in his statement (p. 136) that "the rust joint is generally adopted for large work, that the rubber ring joint is also in general use, and that Portland cement is occasionally used," adding "that the practice can only be condemned." Practical experience goes to prove most conclusively that this statement is wrong, for the cement joint when properly made is the cheapest, most quickly made, most efficient, lasting, and neatest joint used for connecting lengths of hot-water pipes, and quite 90 per cent. of connections made in recent years consist of joints made of cement and rope yarn. The rust joint is quite out of date, as also are the red and white-lead putty-made joints, which the author says at page 138 "are extensively used," alternate layers of yarn and putty being caulked in, finishing off with putty." Joints made of iron borings, powdered sal ammoniac, and sulphur, red and white lead and yarn, were extensively used 30 or 40 years ago before the efficacy and simplicity of cement and yarn-made joints became generally known. The remarks on the heating of a block of six forcing houses at pp. 152-3 are clear and practical, but instead of having the cold-water supply cistern fixed near to the boiler as recommended, we should prefer having it fixed inside one of the houses at the highest end farthest from the boiler, connecting the cistern with the return pipe, making the connection with one of the recently-introduced "saddle clips," and a 1½-inch expansion pipe, instead of the 3-inch or 4-inch recommended, and this should be fixed in the front casting (whence the two flow-pipes proceed) instead of in the 6-inch main flow-pipe. This pipe should be taken up to a height of at least 12 feet above the supply cistern, with a bend or T-piece on top to prevent hot water being wasted in this direction. The author is incorrect in saying that the heat in the mains continued round to form one pair of side pipes in a block of commercial glasshouses arranged as stated at pp. 153-4 cannot be regulated by a valve without affecting the whole apparatus. It is quite essential to the securing of a proper and equal circulation and distribution of hot water in each and all of the flow-pipes that a throttle valve should be fixed in each.

THE PRINCIPLES OF HORTICULTURE. By Wilfred Mark Webb, F.L.S. Blackie & Son.

"This little book is intended to form an introduction to the theoretical side of horticulture, and has been written primarily for the benefit of those engaged in its practice." The requirements of young gardeners and beginners have, therefore, been mainly considered, and the author's experience as a teacher and demonstrator to garden-pupils has served him in good stead. The importance of drawing, as an aid to observation and study, is rightly insisted on. Artistic representations are not needed, and the pupil must not, in his drawings, allow his fancy to prevent him from delineating, as exactly as possible, what he sees, rather than what his imagination suggests. Exact accuracy is not to be expected, though it should always be aimed at. As the pupil's manual facility and his faculty of observation become developed, so will his sketches improve in value. It is only a small proportion of young gardeners who have the opportunity of attending technical schools and laboratories, and, therefore, only a few will be able to make use of a compound microscope, and to acquire the means of preparing objects for microscopical examination. A great deal may, however, be done with a sharp pocket knife and a magnifying glass such as no gardener should be without. With their aid not only may the construction of most flowers be readily made out, but often the nature of hairs and scales, the appearance of cells as, for instance, in the pith of the elder, the spiral vessels, the root-hairs, the pollen-grains, and various other details can be determined with facility. The text-book, or, better still, the lecturer, can explain the uses of these several parts, and thus add greatly to the interest of the practical work of the garden. To dig a vegetable quarter, water a pot plant, open a ventilator, shade a greenhouse, may be all learnt mechanically, but, unless intelligence is brought to bear upon these duties, they become mere tasks and toils to be completed as soon as possible and replaced by some more congenial, even if less profitable, occupation. Infuse intelligence into these proceedings, and what was a task becomes a pleasure. Let the gardener think of a plant as it really is, endowed with life, always at work while life lasts—feeding, breathing, growing, transmitting, manufacturing, storing—and the interest of gardening becomes enhanced. Let him bear in mind also the practical importance of recognising the effect of various degrees of moisture, heat, light in relation to the growth of plants, and the value of what some disdainfully call theory will become apparent. It is essential to be able to do a thing, but to do it well requires intelligence as well as mechanical facility. From this point of view, Mr. Webb's little book will be of great assistance to young gardeners, especially to those who have the opportunity of spending a short time in a technical school. A great deal must, in any case, be taken on the authority of the teacher. Not many of us can prove for ourselves that lime is necessary for the formation of nuclei, or potash for that of starch. These things must, in most cases, be taken on trust, and hence it becomes essential that the teacher and text-book writer should be worthy of confidence. The present work bears such a test well; the text is lucid, the illustrations instructive. Chapters on insects and insecticides are furnished, and a complete list of the natural families is given according to the system of Engler. This is in many respects an improvement on the Candollean sequence, which was followed mainly by Bentham and Hooker. The collocation of Sarracenias, Nepenthes, and Droseras in one group, however, is made for physiological reasons only. Morphologically, these groups are wide apart. To place them together will puzzle the young gardener who can also not be expected to understand the meaning of "leptosporangiate" Ferns. The book is provided with a full index, and is one that should find a place in every garden library.

PLANT NOTES.

PRIMULA ALBA, PLENA.

This old garden plant is a very beautiful subject when well cultivated, blooming from early December if given a light position near the glass roof, and continuing in flower up to early March. As the plants are now past their best condition, the bottom leaves should be trimmed with a pair of sharp shears or a large pair of scissors, and the pots be surfaced with a mixture of chopped sphagnum and leaf-soil, with the addition of a little silver, or clean river sand. The new soil should be mounded well up around the stem of the plant, in order to encourage the development of new roots, so that when the plants are divided towards the end of May, each little offshoot shall be well rooted. The pots should be stood moderately close together, the most suitable place being in a north pit, and as near to the glass as convenient to prevent the leafstalks from becoming unduly lengthened. The top-dressing must be kept moist by daily damping with a rose can, both in the early morning and again in the afternoon. It is good practice to drop the pots into others of a larger size, by which means about 2 inches extra space is afforded for this surfacing, which does not get washed aside. In dividing the plants later, care is required, and a sharp knife should be used, or many of the tiny white roots will be injured. Pots 3 inches and 3½ inches in diameter will be found suitable for the offshoots. Do not press the soil too firmly at this potting, and return the plants to the pit, or place them in a frame, where they must be kept close for a fortnight and be shaded during bright weather. If the plants are watered when potted, a light sprinkling overhead with a fine rose can or with the syringe twice daily on fine days will supply all the moisture required until ventilation is given. The usual compost afforded single varieties of Primulas will suit the plant under notice, and pots 5½ inches in diameter are quite large enough for the final shift in June. *J. Mayne.*

BEGONIA LIMMINGHEII.

As an ornamental plant for cultivating in hanging pots and baskets, this species can scarcely be recommended enough, the abundance of its flowers making it a striking object. The plant should be grown under warm greenhouse conditions in porous, moderately rich soil. It may be increased by cuttings of 3 to 4 eyes, taken at the end of January or beginning of February.

PLANT PORTRAITS.

RHYNCANTHUS JOHNIANUS, Schlechter.—A perennial tuberous herb with sheathing lanceolate leaves, dense flower spikes, with overlapping scarlet bracts and yellow flowers. It belongs to the Zingiberaceae. Introduced with Thunia Marshalliana from Moulmein to the garden of Mr. John, of Andernach.—*Garten Flora*, March 1.

IMPATIENS OLIVERI.—*Le Jardin*, March 5.

BEGONIAS, WINTER-FLOWERING.—*Garden*, March 16.

ROSE, DEAN HOLE.—H.T., pale yellow, deeply flushed with rose-pink.—*Horticulture*, March 9, 1907.

APPLE, FRIANDISE.—An early, Pear-shaped Apple, yellow, strongly flushed with red; flesh delicate, highly flavoured.—*Revue de l'Horticulture Belge*.

PEAR, BELLE GUERREDAISE, a seedling raised by M. Dion. Fruit large obovate citron yellow, flesh white, flavour excellent, comparable with that of Doyenné du Comice; season, October–November.—*Revue Horticole*, March 16.

IRIS PUMILA.—1, Die Braut (the Bride); 2, Brautjungfer (the Bridesmaid). White varieties of *Iris pumila*.—*Die Garten Welt*, March 23.

ANTHYLLIS MONTANA.—Möller's *Deutsche Gärtner Zeitung*, March 23.

PAEDEROTA BONAROTA.—*Gärtner Zeitung*, March 23.

ENOTHERA HAVARDI.—*Gärtner Zeitung*, March 23.

PENTSTEMON LINARIOIDES.—*Gärtner Zeitung*, March 23.

CHRYSOPTERIS VILLOSA VAR. RUTTERI.—*Gärtner Zeitung*, March 23.

SWEET PEAS, HELEN LEWIS and MISS AUDREY CRIER.—*Garden*, March 30.

ACACIA PODALYRIIFOLIA.—*Revue de l'Horticulture Belge*, April 1.

CORAIARIA TERMINALIS.—*Revue Horticole*, April 1; *Gard. Chron.*, 1908, part ii., p. 292, fig. 119.

HYPERICUM CALYCINUM, PATULUM, PERFORATUM and RUBRUM.—*Gardener*, March 30.

FOREIGN CORRESPONDENCE.

ERYNGIUM PROTEÆFLORUM.

THIS very remarkable species is undoubtedly one of the best of recent introductions. The plant is quite different in general appearance from the Eryngiums of the Old World. It is somewhat like a Bromeliad in appearance, and in habit resembles the Eryngium of the Andes of South America.

Mr. C. A. Purpus first collected it in the sub-Alpine region of Mexico, where it occurs near the tree-limit, at an elevation of between 11,000 and 14,000 feet, in damp situations, and often in close proximity to *Pinus Hartwegi*, the Pine that is found at the greatest altitude in that district. It was also discovered growing, often in masses, on open grassy spaces and amongst rocks.

shoot bears at the end one or two flower-heads, which spring from a silvery-white sheath having a diameter of from 7 to 8 inches. The flower-heads are light blue, 2 to 3 inches long, and fully $1\frac{1}{2}$ inches across. These blue flowers, enveloped in their broad, silvery-white sheaths, produce a beautiful contrast of colour. The flowering begins in August and continues till winter sets in.

No special culture is necessary for this Eryngium. Loamy, peaty soil, with leaf-mould, and a somewhat damp situation, suit the plant best. It is very suitable for setting in groups on a rockery, and also looks well when planted singly on turf. The plants are specially valuable as producing an effect that is as striking and uncommon as it is beautiful. Their natural growth in elevated, mountainous regions renders

your opinion (p. 204)—“the abundance, and especially the quality, of the crop, which are the first considerations.”

With regard to present size of pruned and unpruned trees, our results mainly agree with those given by Mr. Pickering, with Apples, Pears, and Plums severally, the difference between the pruned and unpruned Plums (The Czar) being nearly 100 per cent. Pears (Williams' Bon Chretien) also show a great difference in size between the pruned and unpruned trees. Apples (Lane's Prince Albert) show the least difference, but it is clearly defined. The trees of each kind of fruit only slightly pruned are intermediate in size.

But is this difference in size after a period of only eight or ten years remarkable? Considering that properly-pruned bush trees (the



FIG. 106.—ERYNGIUM PROTEÆFLORUM, A NEW SPECIES FROM MEXICO: LEAVES SILVERY-WHITE.

Eryngium proteaeflorum grows as a spreading bushy herb, from 12 to 16 inches high, the flower spikes rising to a height of some 3 feet.

The linear leaves are of a silvery-green colour, from 19 to 24 inches long, and from half an inch to 1 inch wide. They diminish to a point at the tip, and are furrowed lengthwise with fine white ribs. On both edges of the leaves are set, about half an inch apart, white spines, each about three-quarters of an inch in length. They form patches of white, and so produce a striking contrast with the silvery-green of the leaves.

The leafy flower spikes average 3 feet in height. They are much-branched, and each

them tolerably hardy, and only in the northern and colder districts of Europe will the plants need protection in the winter. This fine species of Eryngium has been introduced into commerce by Mr. C. Sprenger, of Vomero, Naples. A. Purpus, Inspector of the Botanic Garden of Darmstadt.

PRUNING AND NON-PRUNING OF TREES.

My annual report on the county experimental garden here being yesterday received from the printer, I hasten to send a copy to you, because on pp. 12-13 you will find results confirming

above remarks apply to bush trees only) annually have from a half to three-fourths of their total growth removed at the summer pruning or winter pruning, or at both, how can they become so large in a restricted time as unpruned and equally healthy trees growing under equal conditions in all other respects? It would be as reasonable to expect a man who took two or three steps backward out of every four paces he took forward to reach his goal in the same time as a man of equal speed who marched straight to the goal. But with regard to the amount of wood annually removed from the pruned trees, if they were credited with the length and weight

of these prunings, there can be no doubt that the pruned trees would easily be first in size and weight. The latter statement is in accordance with your statement—and all my experience in pruning fruit trees—and bears out your opinion "that pruning does increase the production of new wood." *J. Udale, Droitwich.*

EXTRACTS FROM MR. UDALE'S REPORT. RESULTS OF EXPERIMENTS IN PRUNING AND NON-PRUNING.

"These experiments annually increase in value and interest. Eleven trees of Apple Lane's Prince Albert are growing under equal conditions in all respects except in regard to pruning.

Five trees in one row have been annually and carefully pruned. Three trees in the next row have been annually and badly (or roughly) pruned; and three trees in the same row have not been pruned.

—of the fruit, in November we carefully selected 28 lb. of the largest Apples from each stored sample (the whole of the fruit), with the following results after careful counting:—

70 Apples from the well-pruned trees weighed 28 lb.

125 Apples from the badly-pruned trees weighed 28 lb.

170 Apples from the non-pruned trees weighed 28 lb.

When sold in the wholesale market they realised the following prices:—

Fruit from well-pruned trees (first grade) 10s. nett per cwt.

Fruit from well-pruned trees (second grade), 8s. 4d. nett per cwt.

Fruit from badly-pruned trees, 5s. 10d. nett per cwt.

Fruit from non-pruned trees, 4s. 10d. nett per cwt.

For the purpose of this report the above fruit

near future is almost a foregone conclusion in favour of good pruning.

The following respective weights of Apples have been gathered from the garden:—1898, 101 lb.; 1899, 143 lb.; 1900, 414 lb.; 1901, 957 lb.; 1902, 250 lb.; 1903, 566 lb.; 1904, 5,862 lb.; 1905, 1,706 lb.; 1906, 4,652 lb."

THE ALPINE GARDEN.

CHIONOSCILLA "THE QUEEN."

CHIONOSCILLAS—hybrids between the Scillas and the Chionodoxas—are seldom met with, for they do not appear to be numerous enough to be offered in commerce. Natural hybrids have been found, but the finest in cultivation are those raised and named by the late Mr. James Allen, of Shepton Mallet, the most distinct of the set, mainly on account of its colour, being the one named above. It is a hybrid between *Scilla bifolia*, probably the white form, and



FIG. 107.—FLOWERS OF *ERYNGIUM PROTEÆFLORUM*: FLOWER-HEADS LIGHT BLUE.

These were planted in 1899 on the same day as those undergoing the before-mentioned experiments; they came from the same source and from the same parcel of trees.

Each tree has produced more or less fruit every year since 1890 to 1906 inclusive, and the average weight per tree for the whole of that period is:—

Three badly-pruned trees, 199.0 lb. of fruit per tree.

Three non-pruned trees, 183.6 lb. of fruit per tree.

Five well-pruned trees, 105.0 lb. of fruit per tree.

In order that readers may understand the size and market value—as well as the economic value

was sent to market earlier than it would have been, but I do not think that fact affects the issue. It is shown that the non-pruned and badly-pruned trees have—up to date—produced nearly double the quantity of fruit produced by the well-pruned; it is also shown that the latter have produced fruit nearly twice the value of the former, which makes them about equal in value (commercially) up to the end of 1906. The future will prove which system of management be the best of the three; but to predict future events by the past is not very difficult, and, judging by the progress made by the well-pruned trees since (and including) 1904, the result in the

Chionodoxa Luciliae, and it partakes of both of its parents in certain respects. It has erect flowers, thus partaking of one of the characters of *S. bifolia*, and with larger, broader, and more handsome segments than those of the Scilla. The reproductive organs resemble those of the Chionodoxa, and the colour is a pleasing pink, passing to nearly white. Its height approximates that of the Chionodoxa, but in the erect habit of its flowers it is superior to any of the pink varieties of *C. Luciliae*. One can only regret that its slowness of increase has as yet prevented its distribution. The beauty of this Chionoscilla should be a stimulus to the hybridiser of bulbous plants to produce others of equal beauty. *S. Arnott, Dumfries.*

The Week's Work.

PUBLIC PARKS AND GARDENS.

By W. W. PETTINGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Footpaths.—In public parks it is a matter of great importance to have the footpaths so constructed as to be at all times easy to walk upon, and clean during either wet or dry weather. In some respects walks in public grounds differ very considerably from those in private gardens or pleasure grounds. In the latter it is a common custom to have loose, clean gravel spread over the surface of the paths, which, when raked over, gives a trim and neat appearance to the walks and their surroundings. Loose gravel lying about the surface of a walk in a public park would never be tolerated, and it is one of the very first things visitors would complain about. The steel rake is a tool which is hardly, if ever, used upon public footpaths, its place being taken by the birch broom.

Material for use.—As a smooth, even surface is a necessity in a park walk, clean gravels of the pea and granite types are quite unsuitable, and have to give place to dirtier, but binding, gravels such as limestone or yellow Jersey. In this district, limestone gravel being the cheaper is invariably used in preference to the Jersey, although the latter is probably the better of the two. The great drawback of limestone footpaths is that during dry weather they get very dusty and soon kick up and become rough if pedestrian traffic is heavy. In showery weather, when only the top surface is moistened, or during a thaw after a period of frost, the upper layer becomes sticky and adheres to whatever comes in contact with it. This is not merely unpleasant for those who use the walks, but leads to excessive wear and tear. These facts show that although binding gravels meet some of the requirements essential for the construction of a smooth surfaced road, yet they are not by themselves the material with which to form an ideal park walk.

Asphalt is expensive.—In some of the smaller parks throughout the country, where the area covered by footpaths is not very great, the difficulty of having a clean, even, and good wearing road-surface has been overcome by substituting asphalt for gravel. Although one is keenly sensible of the fact that gravel paths seem to be far more in keeping with garden surroundings than asphalt paths, the convenience of the public must be the first consideration in such matters, and it is from the cost and not from sentimental reasons that asphalt has not been more generally used in parks. When it is remembered that different methods of asphaltting cost from 1s. 6d. to 3s. 6d. the square yard, it can readily be understood why this method of path-making has not become general in parks.

The dust nuisance.—The advent of the motor-car has made it imperative for those who are responsible for the maintenance of public highways to discover some cheap method of dealing with roads so as to reduce their wear and tear, and at the same time to minimise the dust nuisance. These objects are best attained by producing a hard, even, road-surface, which is the very condition needed for public footpaths, hence what meets the requirements of the former ought to be equally serviceable for the latter.

Coal-tar.—Up to the present time coal-tar has been found to be the cheapest and best material with which to treat dusty highways, and it is now being used in several parks in this neighbourhood in place of asphalt, and at about a quarter of the cost. It is all the better for being stale, and must only be used after boiling and while still hot. Tarring cannot be done excepting when the paths are perfectly dry and while the weather is fairly warm. The surface of the path about to be treated needs no picking up nor scoring, but simply requires the boiling tar to be sprinkled over it with a large flat brush similar to what is used for white-washing purposes. A layer of fine gravel about $\frac{1}{4}$ -inch thick is spread over the tar and rolled down, after which tar is again applied and another layer of finer gravel spread over it. The whole is once more rolled and tarred, after which the surface is dressed with gravel-dust which has passed through an $\frac{1}{4}$ -inch sieve, and the path is then ready for traffic.

Time of application.—The unfortunate thing about this work is that it has to be taken in hand during the season (from April till the end of September) when the greatest number of people visit the parks, so that every precaution has to be made to prevent the public from being inconvenienced to any considerable extent during the tarring operations.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Deciduous species.—Such Orchids as species of *Catasetum*, *Cynoches*, and *Mormodes*, which rest during the winter months, must no longer be kept under the resting treatment. Where a large number of varieties of these species is grown it will be seen that some plants are more forward with their growths than others, and these should be taken in hand first. When the young shoots are about 2 or 3 inches high, shake the roots out of their old compost, cut away any that are dead, as well as any diseased pseudo-bulbs, and re-pot the plants in a mixture of fibrous loam, lumpy peat, and sphagnum-moss in equal parts, adding plenty of broken crocks. These plants, although requiring very large quantities of water when in full growth, should nevertheless have good drainage, so that the water may freely percolate through the soil. Ordinary flower pots, made about half full with crocks for drainage, and provided with copper wire handles about a foot in length, are suitable. The plants may then be suspended well up to the roof glass, this being very important, as a maximum of light during the growing and ripening period is essential to their welfare. After re-potting, suspend the plants on the light side of the hottest house, and afford water as advised in a former Calendar for the deciduous *Calanthes*. The following varieties deserve to be generally cultivated—some of them produce large handsome spikes of bloom which have a decorative value and delicious perfume:—*Catasetum splendens*, *C. macrocarpum*, *C. barbatum*, *C. tabulare*, *C. pileatum* (*Bungerothii*) and its several beautiful distinct forms, *Mormodes buccinator*, *M. Rolfei*, *M. colossus*, *M. pardinum*, *M. luxatum*, and *M. l. eburneum*, *Cynoches chlorochilum*, *C. versicolor*, *C. pentadactylon*, *C. peruvianum*, *C. Egertonianum*, &c.

***Lissochilus*, *Eulophia*, and *Cyrtopodium*.**—Immediately such species are seen to be developing their young growths, they should be re-potted in a mixture of fibrous loam, peat, crocks, and sand. The *Lissochilus* while growth is being made should be treated as an ordinary sub-tropical *Nymphaea*, standing the plants in about 4 inches deep of water until the end of the summer, when they should be taken out of the water and stood in a sunny position in the warmest house, but the roots must be kept thoroughly moist until after the plants bloom and the foliage commences to die, when it should be gradually discontinued. Place the *Eulophias* and *Cyrtopodiums* in a sunny position, and as near to the roof glass as possible. *Cyrtopodiums* should not be re-potted unless they absolutely need it, as they are more likely to bloom if kept in a pot-bound condition. The same remarks apply also to *Peristeria elata* (the Dove Orchid), and *P. Lindenii*; these plants are now starting to grow, and should be placed where they can obtain plenty of light, heat, and moisture.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Early vineries, in which the Grapes have almost finished colouring, should be kept at a temperature of from 60° to 65° Fahr. at night-time, and it should not exceed 80° by day. A dry atmosphere should be maintained, and ventilation should be provided both by top and bottom ventilators, leaving the top apertures open a few inches all through the night. Test both the outside and the inside borders for dryness and supply sufficient water to keep the roots moist and the fruits plump; after watering apply a fresh mulching of moss litter to the border, and do not allow the soil to become excessively dry throughout the whole of the summer. Examine the rods for red spider, and use effective measures if this pest is detected. Tie in the sublaterals, and use all means to prevent the vines making secondary growths.

Vine "eyes" in 3-inch pots are now well rooted, and they require a shift into 6-inch or 8-inch pots. The compost should consist of turfy loam, with a little lime rubbish, wood ashes, and a sprinkling of phosphoric manure added, the whole to be mixed thoroughly. Pot firmly and stake and tie the growths. Pinch the laterals at their first leaves, and stop the leading shoot when it has made a growth of 4 feet. This will cause the buds in the leaf axils to become plump and to break stronger into growth the following season. Place the pots in a pit or in the vinery where they will have a temperature of 65° at night-time and 85° by day.

Peaches and Nectarines, which have finished their stoning, can now be forced more freely, especially during favourable weather. The houses should be closed in the afternoon with a temperature of 80°, and the morning following the temperature will have dropped to 65°, which will be suitable. Syringe the trees at closing time and again in the morning. Guard against mildew and red spider, and if either pest makes its appearance place 1 oz. of soft soap and 1 lb. of flowers of sulphur in a pail of hot water, mix them thoroughly, and when cooled to 80° syringe the trees and repeat the syringing once daily. This mixture will destroy both the spider and the mildew. Attend to the thinning and the tying of the shoots, regulating them equally apart. Beware of over-cropping; if fruits of fine quality are desired, one fruit per square foot of space will not be too much to allow. Test the borders with the soil tester, and if found to be dry afford a good soaking of tepid manure water.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

French Beans.—Seeds may now be sown in the open in a position where it will be possible to protect the plants in the event of late spring frosts. The ridges between Celery trenches are suitable for this sowing. The seeds are often inserted by means of a dibber, but this practice is not to be commended, because the plants in consequence are apt to come through the ground very irregularly. If even drills are drawn, and the seeds placed in these, they will all be covered with the same depth of soil, and the plants may then be expected to appear above ground at about the same time as each other. It being quite possible for plants from this sowing to get injured by frost, a further sowing should be made after an elapse of 10 days. Further sowings will be necessary to form successions according to the demand. If an occasional row of Butter Beans is added, they will help to add variety to the supply of vegetables, and this is a point worth consideration in most establishments.

Brussels Sprouts and Borecoles.—The forwardest plants of these have now served their purpose, and should be cleared off the ground forthwith. Their retention would give to the garden an untidy appearance, and the roots would extract much nourishment from the ground. The ground now to be cleared will be suitable for a crop of Celery, if provision for this crop has not been otherwise made.

Perpetual "Spinach" Beet.—This makes an excellent substitute for Spinach, and the plants yield an abundant supply through the winter months. They appear quite indifferent as to position, for they are capable of thriving under the shade of fruit trees, and in almost any out-of-the-way place in the garden.

Lettuce and Radishes.—Varieties of both the Cos and Cabbage Lettuce should now be planted in greater quantities in the open ground from sowings that were made in cold frames. Additional sowings should be made in the open. Seeds of the French Breakfast Radish should also be sown.

Potatoes.—Successional plantings of early and second early varieties should now be made.

Tillage.—Frequently loosen the surface of the ground between all growing crops such as Turnips, Carrots, Parsnips, Onions, &c., by the use of the hoe. It will greatly accelerate the growth of the plants.

Asparagus beds should be examined daily for the appearance of early growths, which should be carefully covered over with some light litter obtained from the alleys to afford protection from frost until the growths are long enough and numerous enough for cutting.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq.,
Eastwell Park, Kent.

Celosia pyramidalis.—The earliest plants will now be developing their plumes; therefore, a selection should be made of the best, choosing those of a strong, sturdy habit, and discarding all those that exhibit weak, straggling growth, or "washy" and undecided colours. Re-pot the selected plants into 6-inch pots, using a compost consisting of two parts turfy loam, one part leaf-mould, and one part rotten manure, adding some sand during the process of mixing. Return the plants to a light position near the glass, giving each specimen plenty of room to develop its side shoots and acquire a perfectly pyramidal form. Syringe the plants night and morning, taking care to thoroughly wet the under-side of the leaves to dislodge red-spider, a pest to which *Celosias* are very susceptible. An atmospheric temperature of 60 to 65 degrees will suit the plants, admitting air early in the day, as the heat increases, but closing the house early in the afternoon, to conserve the sun heat. If large specimens are required, select the best plants when again ready for re-potting, putting them into 7 or 8-inch pots, in which size very fine plants may be cultivated. After the plumes are fully developed, cooler and drier atmospheric conditions will suit the plants better. They will then have reached the proper stage for use in decorating the conservatory or flowering-house, where they will be capable of lasting in beauty for several weeks.

Cockscombs.—These plants succeed under similar conditions to those advised for *Celosias*. Always keep the plants as close to the glass as possible, dwarfness being considered an essential characteristic of well-grown plants.

Euphorbia (Poinsettia) pulcherrima.—If plants of this winter-flowering species have not already been cut back to sound, well-ripened wood, let them be so treated at once, and placed afterwards in a warm house, where they should be syringed occasionally to induce them to break into growth. As soon as strong and healthy shoots, about 6 inches in length, are produced suitable for the making of cuttings, let sufficient be removed, with a "heel" to each, and inserted without any delay in "cutting" pots previously prepared in the propagating house. The cuttings should not be allowed to flag before they are inserted in the soil. They usually make roots in two or three weeks, after which air should be gradually admitted to the frame, in order to slightly harden the little plants before they are potted. Do not let them become pot-bound, as the fleshy roots are exceedingly brittle, and might thereby suffer damage.

Euphorbia fulgens (jacquiniiiflora).—This species is rather more delicate than *E. pulcherrima*, in the sense that it cannot withstand rough treatment or a low temperature at any time. Propagation may be effected in the same way as in the case of that species. The roots being very fine, this plant succeeds best in comparatively small pots and a very porous compost. Excess in watering is most harmful at any stage.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow,
Cornwall.

Hardy aquatics (continued from p. 235).—The recognised method of planting the hardy *Nymphæas* is to place the root-stocks in loosely-made baskets of soil, using thin pieces of turf on the top, and lacing the baskets across with willows so that the soil and plant may not float out. If the pond will provide sufficient nourishment, all that remains is to gently lower the basket into its place. In the case of an artificial bottom the basket containing the plant should be placed in a mound of soil, deep enough to just hide the rim of the basket. If the water can be maintained at a uniform level, the depth at which to plant will present no difficulties—the mounds can be raised for those varieties which succeed best nearer the surface of the water; but where the water line varies, careful consideration is required. The baskets must be sunk sufficiently deep to ensure that the crowns will not be exposed during the summer, and too great a depth during the winter must be guarded against, or it will be late before growth commences, and some kinds will either refuse to grow or flower only poorly if too far from the surface of the

water. As a general rule the *Marliacea* group will grow and flower well even at a depth of from 18 to 30 inches, while most of the *Leydekeri* section succeed best when about 9 inches from the surface of the water. After three or four years some of the more robust kinds—notably *N. Marliacea chromatella*—will require rigorous, annual thinning, or the flowers will be hidden by the luxuriant leaves. This thinning is best done by removing many of the side crowns, which, if required, can be used for increasing those varieties. *Aponogeton distachyon* does best in running water, and to enjoy the fragrance of its flowers it should be kept as near the edge as possible. The interest of the Lily pond will be increased if such plants as *Alisma Plantago*, *Butomus umbellatus*, *Richardia Africana* (*Calla æthiopica*), *Sagittarias*, and *Typhas* are planted near the edge, and in many cases a few of the floating plants (*Azolla filiculoides*, *Stratiotes aloides*, &c.) may be added.

Lobelia cardinalis.—Contrary to the general custom, we in Cornwall winter these plants out-of-doors, and find that under this treatment they keep much better than when coddled under glass. As soon as the flowering season is over, the stems are cut down to within 3 inches of the ground, the clumps are lifted entire and planted thickly on a south border, care being taken to plant firmly to prevent the frost from penetrating to the roots. If more than 6° or 7° of frost is anticipated, a thin layer of dried bracken, or some archangel mats, is placed over the crowns while the frost lasts, and removed when milder conditions prevail. The crowns are now lifted, divided into clumps of convenient size, and planted in their flowering positions.

Wallflowers.—Seeds should now be sown thinly out-of-doors to provide plants for next year's spring bedding display.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE,
Bicton, East Devon.

Peach and Nectarine.—In the warmer parts of the country the removal of surplus shoots on these trees will have become necessary. Disbudding, as this practice is termed, requires much care and judgment, and the removal of surplus growths should extend over three or four weeks, allowing a week to intervene between each operation, for the removal of many shoots at one time would most likely cause a harmful check to the tree, and probably cause the majority of the fruits to fall off. The trees under notice fruit principally upon ripened wood of the previous year's growth. It is, therefore, necessary, that suitable shoots should be retained for that purpose, and in the case of established trees the shoot nearest the base of the present fruiting branch—and this on the upper side—should be the one reserved for next year's crop. In the majority of cases one shoot will be sufficient to retain, but if space exists for a second branch—and 1 foot at least should separate them—it may be permitted. In removing young growths having tiny fruits at their sides see that the latter are not disturbed; a shoot may be allowed to remain at intervals, and pinched; the few leaves will act as a protection to the young fruit. Pick off any curled or blistered leaves, for the blister disease quickly spreads during spells of cold, cutting winds.

Apricots.—Although these trees do not require the amount of disbudding that a healthy Peach or Nectarine does, there are always a number of shoots that must be dispensed with, whilst reserving the best placed so as to ensure a succession of bearing wood for another year. Gross shoots should be rubbed off, retaining only those nearest the wall on the upper side, as well as those on the lower side, to form spurs, pinching these at the third or fourth leaf. Naturally-formed spurs—that is, those shoots that do not grow beyond a couple of inches—need no stopping, but are better for thinning when too thickly placed. Clusters of fruits should be thinned, rubbing off the smaller ones and any that may be placed in unfavourable positions. Young trees making robust growth should be pinched; extra strong growths are of little value as fruiting wood, and if they are allowed to develop at will they quickly spoil the shape of the tree. The above remarks also apply to other stone fruits, including the Cherry and Plum.

THE APIARY.

By CHLORIS.

Time for Careful Examination.

Feeding.—The busy season is now approaching, and every hive should be examined, and its exact condition as to food, brood, and whether the occupants are suffering from dysentery, ascertained. The bees now require a great deal of food, as the brood is, or should be, rapidly increasing. Money spent on feeding now will be well laid out, for food will strengthen the colonies and render the bees ready for gathering the main honey crop, the season of which varies according to the district and the flower from which it is principally gathered. A suitable food is made as follows:—White sugar, 1 lb.; water, 7 pints; salt, 1 ounce; vinegar, 1 tablespoonful. Some beekeepers add naphthol beta, salicylic acid, or phenol solution as a preventive of foul brood, but, as the value of these substances is questionable, it may be omitted. However, should they be desired, use as follows:—Dissolve a small package of naphthol beta in 2 ounces of alcohol or methylated spirit, and mix it with about 28 lbs. of the syrup. Salicylic acid, 1 oz. in 2 pints of water, will be sufficient for mixing with 8 quarts of food, while $\frac{1}{2}$ oz. of phenol added to each quart of syrup when cool will suffice.

The best time to supply the food to the hives is whilst the bees are not on the wing, and the jar should be placed over the feed hole, and be wrapped in some non-conducting material, so as to conserve the heat of the liquid. (See fig. 108.)

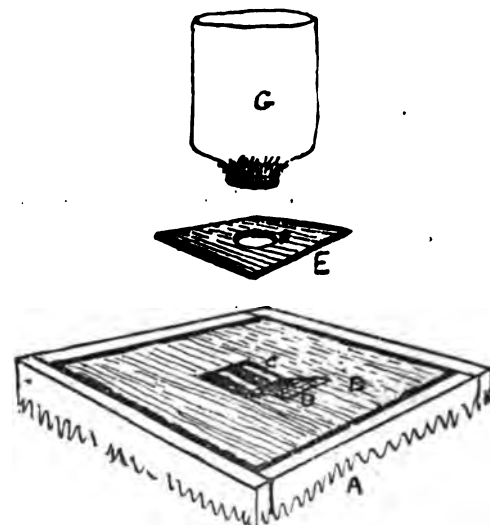


FIG. 108.—FEEDING BEES.

A, top of brood-chamber; B, quilt; C, feed-hole; D, the flap cut on three sides; E, wood $\frac{1}{2}$ in. to raise bottle; F, hole; G, bottle of syrup.

Water.—If no pond or stream exists near the apiary a number of receptacles containing water should be placed in the garden or field, and to prevent the bees from being drowned a number of stones should be placed in the jars. Bees require large quantities of water whilst raising brood, and they may often be seen on the mud on the sides of a pond in search of water.

Brood.—To induce a rapid production of brood place the bottle of syrup over a different frame about every ninth day. Where the bees have sufficient honey for food, the cappings of one frame should be bruised each ninth day, and the comb be placed in the centre of the frames containing brood.

The wax moth.—In hives that have not been cleansed of dead bees and accumulated rubbish the wax moth finds an excellent place in which to lay her eggs. Weak colonies will suffer more from this pest than the stronger ones. The grubs of the wax moth are to be found chiefly in the sawcut on the top of the frame and in cocoons in the quilts.

Warm quilts.—Very few persons seem to realise how necessary warmth is to successful bee-keeping. It is well to reduce the size of the brood chamber by the aid of dummies, and to keep the quilts well tucked into the corners and about the feeders, and much heat may be conserved by placing a sheet of brown paper between the quilts, as paper is a bad conductor of heat.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APRIL 20—
German Gardeners' Society meet.

TUESDAY, APRIL 23—
Midland Daffodil Soc. Exh., Birmingham Botanic Gardens (2 days).

WEDNESDAY, APRIL 24—
Roy. Bot. Soc. Exh.
Darlington Hort. Soc. Spring Fl. Sh

FRIDAY, APRIL 26—
Royal Botanic Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—48° 4'.

ACTUAL TEMPERATURES:—
LONDON.—Wednesday, April 17 (6 P.M.): Max. 57°; Min. 40°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 18 (10 A.M.): Bar., 29.9; Temp., 45°; Weather—Overcast.

PROVINCES.—Wednesday, April 17 (6 P.M.): Max. 49° S.W. Ireland; Min. 40°, Scotland, N.

SALES FOR THE ENSUING WEEK.

TUESDAY AND WEDNESDAY—
Duplicate Plants from the Westfield Collection of Orchids, by order of Francis Wellesley, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 1.

THURSDAY—
Hardy Border Plants and Bulbs, Lilliums, Azaleas, Palms, and Plants, at 12; 1,500 Roses, at 1.80, at 67 and 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
Choice imported and established Orchids from various sources, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Report of Conference on Genetics. "Genetics" is a term devised by Mr. Bateson to include the sum total of the phenomena of heredity, variation and cross-breeding in all their several degrees.

It applies to the breeding of animals and of plants in the same manner. So far as we know, the term was first used by Mr. Bateson in his Presidential Address at the Hybridisation Conference in July last. Its convenience will ensure its general adoption and the "Report of the Third International Conference" just issued by the R.H.S. will greatly facilitate its diffusion. As to the report itself, we may at once say that no more valuable document has ever been issued by the Society, nor one more full of promise for the future. As the title page tells us, it is devoted to subjects connected with "the hybridisation (the cross-breeding of genera or species), the cross-breeding of varieties and general plant breeding." It is edited by the Rev. W. Wilks, the Secretary of the Society, and not only is no one likely to "judge harshly" of his efforts, but most

assuredly those who know anything at all of the labour involved in passing such very highly technical and scientific matter through the Press will be the first to congratulate the Editor on the success of his efforts. The very potent aid of Mr. Bateson is fittingly acknowledged, and recognition is also made of the "vast indebtedness" of the Editor to Mr. Hutchinson, "the Society's librarian." Incidentally, we may allude with satisfaction to this recognition of Mr. Hutchinson as the Society's librarian, as it secures the fulfilment of the requirements of the trust deed under which the library is held.

Turning to the contents of the volume, we find the foremost place, after the prefatory note, allotted to a portrait of Abbot Mendel; a second and a third portrait of the ecclesiastic whose experiments have, after the lapse of several years, been turned to such excellent account, are given eighty pages further on, accompanied by a biographical notice from the pen of the Editor, as well as by an exposition of the facts and phenomena and the deductions from them which go to make up what we now call "Mendelism." Those who only require to obtain a general notion of what Mendel did, and how he did it, will read this brief summary with much interest. Those whose object it is to pursue the intricacies of the subject will read the subsequent pages with avidity, for nowhere else can they find in such convenient form a statement of the developments that have taken place since Mendel's publication was unearthed. Many who previously have had but a confused idea of the subject will find here as clear an exposition as is possible to be obtained from a printed page. Those who were fortunate enough to see the results as exhibited at the conference, and the record of which is given in full, will, of course, be the better able to grasp their significance. There remain those who have been actively engaged in the practical experiments, so many of which are recorded in the pages of the report. The opinion of the members of this latter class must, of course, be treated as "dominant." The opinions of others must be treated as "recessive." There is the more reason for this, for, up to this time, we believe that all the experimenters are in substantial agreement as to the general truth of Mendelism. There are difficulties and complexities, no doubt, which at present are not explained, and there are some facts which do not seem to tally with Mendelian principles. Nevertheless, making allowances for these doubts and difficulties, there is, as we have said, substantial agreement among all those who have undertaken experiments, under like conditions, for they have come to the same general conclusions.

The social amenities by means of which the severities of the congress were lightened, and an opportunity given to show hospitality to our foreign guests, are all fully set forth in the report, but, as they were all published in the Press at the time (barring the bills of fare!) it is not necessary to refer to them again. Of much more permanent value is the list of exhibits arranged in the great hall for the purpose of illustrating Mendelian phenomena. These may be referred to again and again with advantage. They illustrate the experiments made by Miss Saunders at Cambridge, the repetition of Mendel's experi-

ments on Peas by Mr. Lock, the results obtained with Wheats and other cereals by Mr. Biffen which are of extreme value not only from a scientific standpoint, but also from their direct practical importance. A similar remark applies to the experiments and observations with Potatoes, sheep, ducks, rabbits, pigeons, horses, fowls and other subjects.

Under the heading "Conference" will be found Mr. Bateson's introductory address, which was printed in full in our columns at the time. Then follow the papers and memoirs contributed by various members, with notes on the discussion which took place. On most of these a report also was given in our pages, whilst others of a highly technical character, and some appealing to mathematicians rather than to physiologists, will be found in the report before us. The papers of M. Camus and Mr. Lynch on spontaneous hybrids will be very serviceable for reference. It is to be regretted that the complete catalogue drawn up by M. Camus could not be given owing to its length, but it is earnestly to be desired that some other means may be found of giving to the world so useful a document.

As was well said at the conference, science must come first, its application afterwards, otherwise we shall be doomed to go on in the old routine, rule-of-thumb methods—good enough in their way, but not making for progressive improvement and new developments. Nevertheless, those who, as they say, want facts rather than theories, will find them here in profusion, but we venture to say that this class of cultivator will not be able to avail himself of those facts or compass his objects so rapidly as he who, by the aid of theory, learns how to apply the fact to useful purposes. The experimenters are the men who bring the ore to the surface; the theorists are those who smelt it and render it available for use; the cultivator is the man who has intelligence and tact enough to employ it for his purposes. "Technical" though some of these papers may be, it is impossible not to recognise their enormous importance from a practical point of view. Take, for instance, such communications as that of Sir Daniel Morris on the "Improvement of the Sugar Cane by Hybridisation," the remarkable memoirs on the "Breeding of Cereals" by Prof. Zavitz, M. Philippe de Vilmorin, Mr. Biffen, and Prof. E. S. Salmon. The importance of these communications as pointing out the way in which improved varieties, suitable for different conditions or varied purposes, may be obtained, as well as of varieties capable of resisting disease, can hardly be over-estimated. Other memoirs will appeal more especially to the florist, such as that on Carnation breeding in America. Expressed in money terms this means in the United States alone an annual money value of a million pounds, and a capital value of five million pounds sterling. These are figures for the practical man to ponder over. Mr. Arthur Paul's note on the derivation of some of our newer Roses will attract the attention of Rosarians, whether they be amateurs or those commercially interested. From the point of view of the application of Mendelian principles to the practical work of the hybridiser, Mr. W. Laxton's paper on the cross-breeding of Peas



PAEONIES AS CULTIVATED IN THE NURSERY OF THE YOKOHAMA NURSERY COMPANY, YOKOHAMA, JAPAN.

and of hardy fruits is highly important. He evidently recognises the value of Mendelian experiments, and shows how and why they may fail in particular instances, and how much patience is required by the experimenter. Taking a combination of characters as requisite in a fruit to render it commercially valuable, he points out that, by chance, the experimenter may be lucky enough to combine in one fruit all the desired qualities, but that if, on the contrary, one be deficient, the result is failure. "Therefore, as we have not any guide as to these characters being either dominant or recessive in their generation, we have to make very many crosses before we succeed in combining them all in one plant." Mr. Laxton goes on to say that he has never been able to reproduce any one of his seedlings in all of its characters even by effecting the same cross, and in illustration he cites the case of the Strawberry Royal Sovereign, which was raised by crossing Noble with King of the Earlies. The same cross has been repeated many times, but no Royal Sovereign has been produced. In like manner Gradus Pea was raised out of Earliest of All by pollen of Duke of Albany. The same cross has been made many times, but no Pea exactly like Gradus has been found among the offspring.

The fact that the results obtained in crossing are not always in conformity with the Mendelian law is attributed by Mr. Laxton to the circumstance that he has used "impure" and not fixed strains, that is, seedlings of the second and third generations that are not fixed types. It is, however, among such seedlings that the greatest "breaks" are to be expected in the future. The volume closes with a paper on the phylogeny of Orchids, which has a melancholy interest, inasmuch as it was prepared by Prof. Pfister, of Heidelberg (not Stuttgart as printed) for insertion in the report. The professor died before he could effect his purpose. The paper was found on his writing-table and forwarded by the executors to the secretary. Few that saw Prof. Pfister and admired his talent and geniality could have expected that his career was to be so soon terminated.

A full index closes a volume which is most creditable to the society and to all concerned in its production. For many years to come it must serve as a most valuable book of reference and a most potent stimulus to the promotion of the science of genetics and to its practical application.

OUR SUPPLEMENTARY ILLUSTRATION to the present issue is reproduced from a photograph kindly supplied by Mr. A. DIMMOCK, and illustrates a field of Pæonies as cultivated in the nursery of the Yokohama Nursery Company, Yokohama, Japan. Most of the plants represented in the picture are varieties of *Pæonia officinalis*, and are therefore of the type known as herbaceous, which, generally speaking, are easier of cultivation in this country than those of the shrubby type, such as varieties of *P. Moutan*. The Yokohama Nursery Company, however, cultivates both sections in large numbers, and of those which are annually exported from Japan, a considerable quantity is sent to Britain. Some of our readers had the opportunity of seeing an excellent group of tree Pæonies in pots, shown by W. JAMES, Esq.,

West Dean Park, Chichester, at a recent meeting of the Royal Horticultural Society. Those plants, which were awarded a medal and a cultural commendation, were obtained direct from Japan, and we have been favoured by the following particulars of them sent us by Mr. W. H. SMITH, gardener at West Dean. Mr. SMITH writes as follows:—"We had a quantity imported from the Yokohama Nurseries during the time of the war between Russia and Japan. When the plants arrived, they were laid in rough leafmould until their roots had commenced to make small fibres, when they were potted up into 8-inch pots. The compost was one of rough, fibrous turf, leafmould, and rotted cow manure. After potting, the plants were placed in a cool orchard house, and they were watered sparingly for some time. When they had filled the pots with roots, they were afforded weak liquid manure until the flowers commenced to show colour, but no longer. When the flowers faded, the plants were placed outside under the shade of a north wall until the leaves were hardened, when they were put in the full sun to ripen the wood. After the flowers were cut, manure water was again afforded each time the plants were watered. The Pæony appears to be a gross feeder. Two hundred Pæonies were imported, and we only lost two plants." The plants as exhibited were handsome subjects for the decoration of the conservatory and dwelling-house. The flowers are no less attractive in form than they are bright in colouring, and the foliage itself is of good effect. See also a letter on p. 257.

LINNÆUS.—The 200th anniversary of the birth of LINNÆUS is to be celebrated at Upsal on May 23 and 24. The university has issued invitations to various societies to send representatives, and Mr. B. DAYDON JACKSON has very appropriately been selected to represent the Linnæan Society of London. The society, as is well known, is in possession of the herbarium, library and many manuscripts of the great Swede.

THE LONDON GEOLOGICAL FIELD CLASS has arranged its excursions for the study of the London district, under the direction of Professor SEELEY, to commence on Saturday, April 27. Mr. J. W. JARVIS, St. Mark's College, Chelsea, is the hon. secretary.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, April 22, at 4 p.m., being the second of the two afternoon meetings arranged for the convenience of the country members, when the discussion on the paper read by Mr. LESLIE S. WOOD on December 10 last, entitled "The Improvement of our Woodlands," will be resumed.

PIGMY TREES.—Pigmy trees are of such interest that it would seem worth while for some nurseryman to secure and propagate the pigmy form of the Black Jack Oak, *Quercus nigra*, which botanists tell us exists in the woods near Millville, N.J. The usual height of the Oak is 30 to 40 feet, but the pigmy ones referred to have been observed of no more than from 2 to 6 feet, the very dwarfiest of them bearing acorns. The *Quercus nigra* is a beautiful tree at all times, especially in summer when clothed with its large shining green leaves. A note in the *Botanical Gazette* describes a forest of dwarf trees found upon the west coast of Vancouver Island, British Columbia. The little trees are of three kinds, *Thuja gigantea*, *Tsuga Mertensiana* and *Picea sitchensis*, and range in height from less than 1 foot up to 2 feet or a little more. No doubt soil and situation have had to do with the dwarfing of these trees, still the character would be so fixed that even in favourable situations for growth great variation from old forms would not be looked for some time. *The Florists' Exchange*.

SOUTH-EASTERN AGRICULTURAL COLLEGE.—A meeting of the Governors of the South-Eastern Agricultural College, Wye, Kent, was held on the 15th inst., the Right Hon. Lord ASHCOT presiding. The Principal reported that 110 students would be in residence for the summer term, commencing April 22. The following appointments were made: Mr. C. H. HOOPER, F.S.I., Librarian; Mr. C. GIMMINGHAM, Analytical Assistant; Mr. B. N. WALE, B.Sc., Assistant Agricultural Zoologist. The Egyptian Government has conferred the Order of Osmanie on Mr. THEOBALD, the Vice-Principal and Entomologist. Prize day was fixed for July 24, when the Right Hon. AILWYN FELLOWES will present the awards. The Grocers' Company have made a donation of 10 guineas to the College. The British Dairy Farmers' Association will visit the College on June 12. *M. J. R. Dunstan, Principal*.

THE INTERNATIONAL HORTICULTURAL EXHIBITION at Dresden promises to be both comprehensive and interesting. The special show of Orchids is to be held from May 4 to 6, and that of other plants from May 8 to 12. The jury meets on Friday, May 8, and for the general section on Thursday, May 9. The grand opening of the Exhibition by His Majesty THE KING OF SAXONY is fixed for Saturday, May 4, at 11 a.m. On Sunday, May 5, meetings will be held of the German Horticultural Societies. A banquet will be given on Monday in honour of the judges, members of the Press and other guests, and invitations have been issued for a performance at the Royal Opera House, on Tuesday, May 7. Wednesday, May 8, is to be devoted to a day excursion into Saxon Switzerland, comprising a steamboat trip to Wehlen, thence through the Uttowalder Grund to The Bastei and descending to Rathen, and so back to Dresden.

MANNHEIM INTERNATIONAL EXHIBITION.—The programme for the horticultural shows at the great Jubilee Exhibition, to be held from May to October in this Rhenish city, has reached us, through the courtesy of Mr. OTTO BEYRODT, Marienfeld, Berlin, who will supply intending exhibitors with information about exhibits of Orchids and novelties at these shows. A grand hall is to be placed at the disposal of the exhibitors, and everything will be done to make the exhibition a great success. Several English amateurs are to act as members of the jury, and the council hope to welcome several exhibitors from this country. All the schedules are ready, with the exception, apparently, of that for the exhibition of Orchids to be held from October 18 to 20. The following are the dates of the various displays:—Orchids and novelties in plants and flowers, May 7 to 9; forced fruits and vegetables, May 18 to 20; Cactuses and other succulents, June 6 to 19; Strawberries, early Cherries and early vegetables, June 8 to 11; cut Roses, June 22 to 24; early fruits and early vegetables, July 13 to 15; Ferns: tropical, subtropical, useful and industrial plants of all kinds, August 2 to 6; early kernel and stone fruits, August 10 to 12; cut Roses and vegetables, September 21 to 24; fruits, October 5 to 14; Orchids, October 18 to 20.

THE STUDIO YEAR-BOOK OF DECORATIVE ART.—This is well described as being a guide to the artistic construction, decoration and furnishing of the house. Whether all the original and adapted designs are equally beautiful and appropriate, we will not decide, though we take special interest in the representations of garden furniture, trellises and flower stands. The whole makes a large volume, well got up and containing so much in the way of letterpress and pictures that each reader must find something herein to please him. The year-book is published at the offices of the Studio; London, Paris, and New York.

THE ACTION OF CHLOROPHYLL IN RELATION TO LIGHT AND TEMPERATURE.—M. LUBIMENKO, in a paper in the *Comptes Rendus*, shows that:—1. Under the conditions in which the chemical reactions in the interior of a living plant take place, light and heat usually act in the same way as regards the decomposition of carbonic acid gas. 2. There is, for heat as for light, a most effective or "optimum" degree of intensity beyond which the amount of assimilation is diminished. 3. The diminution of the assimilating power beyond this optimum intensity is much more strongly pronounced in shade-loving than in light-loving plants.

HARDY PALMS.—There has been some confusion with regard to the name of the Palm commonly known as *Chamærops Fortunei*. Signor BECCARI now refers this Palm to the genus *Trachycarpus*, and considers it to be synonymous with *T. excelsa*. In *Trachycarpus* the endosperm, or white tissue constituting the bulk of the seed, is homogenous, whilst in *Chamærops* it is "ruminate" and presents a mottled appearance.

MEEHAN'S MALLOW MARVELS.—In MEEHAN'S nurseries, Germantown, Philadelphia, experiments have been going on for some years on the production of this Hibiscus in various colours other than its natural one, which is a rose colour, the chief object being to obtain a hardy crimson-flowered one by hybridizing it with the crimson one from a tropical clime. This idea of thus improving this flower was first suggested by the late THOMAS MEEHAN, and his suggestion interested one of his employees, ERNEST HEMMING, and to him is due the credit for obtaining the beautiful hybrids which have resulted from the crossing. It has been a task of several years to reach the results at the present day. Year after year, when the beds of plants are in flower, they attract great attention. There are all colours from pink to crimson; but all the time but a very few of the best were saved, with which to continue further crossing. At the present time four sorts have been selected as eminently worthy of dissemination; they have been named Crimson Marvel, White Marvel, Red Marvel and Pink Marvel. Although the Hibiscus *moscheutos* is one of the parents, the sorts selected do not have the same style of growth. There is not a rank, coarse, open growth, but rather a taller, more branching habit, of much more pleasing appearance than that of *H. moscheutos*; and although a height of from 6 to 9 feet is made in good soil, the growth is always well able to take care of itself in storms. The extreme hardness of these Mallows cannot be too clearly emphasized. They are absolutely hardy wherever *H. moscheutos* is hardy, and this is equivalent to saying practically all over the Northern States. These Mallows, like their parents, are tenacious of life. In spring, after severe winters, some of the seedlings have been thrown to the top of the ground by frost, yet have not failed to grow when reset; and in this respect they surprise those not aware that the Hibiscuses are known to transplant well. Hibiscus plants start into growth very late always, often not before the close of April. The best situation for Hibiscus is an open sunny one, where the ground is deep and moist. Planted in such a place there will be a display of their large handsome flowers—some of them 7 to 8 inches in diameter—through August and September. *The Florists' Exchange*.

NURSERYMAN'S "DIAMOND WEDDING."—On Friday, April 5, Mr. and Mrs. CRICK, of Houghton Park, Nurseries, Ampthill, Beds., celebrated their diamond wedding. Mr. and Mrs. CRICK have lived at Houghton Park Nurseries nearly the whole time since they were married, for Mr. CRICK succeeded his father in the business 75 years ago, and still takes an active part in all that pertains to the management of the nurseries.

CALCEOLARIAS.—How many of us, we wonder, know how many species of Calceolaria there are? Not more than half a dozen of them, we suppose, are in cultivation, disregarding, of course, the innumerable varieties raised by the florist. Dr. KRANZLIN, known to Orchid growers for his researches in the great family of the Orchidaceæ, has now turned his attention to the Calceolarias, and in a recent number of *Das Pflanzenreich* has described and systematically arranged about 200 species, besides some of uncertain nature and various hybrids, 15 of which latter, including *C. Burbidgei* X, are described. Numerous illustrations are provided as well as a full index.

GRAFTED DAHLIAS.—M. LOMBARTRIX describes in a recent number of the *Jardin* a Dahlia growing in a pot and producing, from August to October, nine different varieties from one plant. The stock was a tuber of the variety known as *Etoile du diable* (!) On this were grafted in spring scions of *Primrose Dame*, pale yellow; *Octopus*, pale lilac; *Domini*, white with fawn-coloured edges; *Starach* (?), orange scarlet; *Emperor*, plum-coloured, shaded with yellow; *Cinderella*, bright amaranth; *Major Haskins*, crimson; *Perle de la Tête d'Or*, pure white; and *William Cuthbertson*, reddish apricot. Grafting is done in various ways, no one method having apparently any special advantage over the others, the grafted plant being kept shaded under a bell glass till union is effected in about three weeks. M. LOMBARTRIX has also succeeded in grafting Dahlias in the open ground in August, keeping the grafts shaded.

WEEDS AND SUSPECTED POISONOUS PLANTS OF QUEENSLAND.—MR. F. MANSON BAILEY has drawn up this useful copiously illustrated book dealing with noxious plants, especially in Queensland. The author is too good a botanist to acknowledge any plants to be "weeds" except those which make themselves objectionable in cultivated ground. Clearly what is a weed in one place is not in another. It is hard to think of *Nymphæa flava* as a weed, but Mr. BAILEY tells us it is one of the worst water-weeds in Queensland; neither should we here look on the *Tomato Lycopersicum esculentum* as a plant to be despised but, rather, developed.

LILAC CULTURE IN GERMANY.—The raising of Lilac plants for forcing from autumn till late spring has not "caught on" in England as has been the case for 20 years in Germany, and we mostly draw our supplies, as did the Germans formerly, from France. I much doubt if the latter do so to any great extent, at the present day, partly for patriotic reasons, and partly because it has been found that as good material can be grown in their own country as in France, whilst money is kept at home and employment found for the labouring classes. One of the largest growers, if not the very largest, is Herr F. SINAI, of Frankfurt-on-the-Main, who has 150 *morgen* of land, three-fourths of which is under Lilac. In 1891 he had 20 *morgen* of land devoted to this crop. His chief Lilac for forcing (he sells but few plants) consists of seedlings, selecting these by reason of such peculiarities of growth as promise by further cultivation to show valuable features: a method that has resulted in a number of seedlings being raised widely superior to well-esteemed varieties. Besides the seedling which he raises annually, there are the best of the trade varieties, as Charles X., Marie Legraye, Andenken an L. Späth, Michel, Buchner, Mme. Lemoine, &c., which are grown for forcing purposes, and a number of the Marly Lilacs, which in less than four years in the nursery set a good number of flower-buds. These Lilacs are grown from suckers not budded or grafted, and they flower well in balls, and thus save the expensive potting work. Herr SINAI forces 108,000 Lilac plants in all, but the demand is not great before Christmas. The plants for that season are placed in the forcing houses on November 27, and these consist entirely of unprepared plants. *F. M.*

THE RELATION OF METEOROLOGY TO HORTICULTURE.—A second lecture on the above subject was given by Mr. R. H. CURTIS, F.R.Met.Soc. at the Royal Horticultural Society's meeting on the 16th inst. He dealt on this occasion with rainfall, and said that water in the form of steam or invisible vapour, an important constituent of the atmosphere, always present, although to an extent which varies greatly in different regions, and is also constantly changing at the same place. He explained briefly that the maximum amount of this invisible vapour which the air can contain depends upon the temperature of the air, and that, for example, whilst at a temperature of 60° it could hold in the gaseous form about six grains of vapour in a cubic foot of air, that amount would be reduced by one half if the temperature of the air were to be lowered to 40°. Whenever, therefore, the amount of vapour exceeds the maximum which the air can hold, the excess becomes at once condensed into water, the particles of steam uniting to form exceedingly minute drops of water, far too minute to be distinguished individually, but forming in the aggregate a more or less dense cloud or fog. It was pointed out that in this operation dust played a very important part, and formed nuclei upon which the minute water drops were formed; but in every case cooling of the air was the primary cause of the condensation. The way in which the necessary cooling was brought about was then explained, and it was shown that, so far as the formation of rain-clouds was concerned, by far the most common cause was the dynamical cooling due to the expansion of the air. The part played by hills and mountain ranges in lifting currents of air to higher levels, where they expanded owing to the reduced pressure to which they were subjected, was then explained, and it was shown that the excessive rainfall of certain hilly regions was due to this cause. The action of the sun in causing ascending currents of air was shown to be another cause of expansion and the formation of cloud. The way in which cloud particles combined to form rain drops was then explained, and the lecturer passed on to the subject of the measurement of rain and to its geographical distribution, and especially its distribution over the British Islands. In this connection he referred to the British Rainfall organisation now under the direction of Dr. H. R. MILL, which collates and discusses the observations of some 4,000 observers of rainfall, and puts the results into a form in which they become serviceable to the public. Reference was made to the influence of rain upon vegetation, and some views were exhibited in illustration of this part of the subject, but it was pointed out that the work of the meteorologist was to obtain and put into a useful form the elements of climate rather than to show how they were made use of in the economy of plant life. Attention was directed, however, to the connection which Dr. W. A. SHAW, F.R.S., the Director of the Meteorological Office, had noticed between the amount of the rainfall in the autumn and the yield of Wheat in the succeeding harvest. This had led to the discovery of a remarkable periodicity in the yield of Wheat, which had enabled Dr. SHAW to prepare a formula by which the probable yield of Wheat for a given district can be calculated, and a diagram was exhibited showing the amounts so calculated and the actual yields for the Eastern Midlands for a long series of years, attention being called to the remarkably close agreement shown between them. The relative frequency of rain at different hours of the day and the relative amounts which fall were then referred to. It was shown that about 5 or 6 a.m. was the period at which rain fell most frequently, and that at midday it was least frequent. The amount of rain was also generally greatest in the early morning, but at Kew more rain fell in the afternoon than at any other period; in other words, whilst an umbrella would be most often needed in the early morning, it would be most urgently required in the afternoon. After referring to the storage of rain water for horticultural purposes, reference was made to floods, and the lecture was concluded with a series of views taken in the Thames Valley during the great flood of November, 1894.

A GARDENER'S REMARKABLE LENGTH OF SERVICE.—The funeral of Mr. THOMAS FREEMANTLE took place in the Romsey Cemetery on Saturday. Mr. FREEMANTLE, who had reached the age of eighty-one, had worked in the gardens at Broadlands for seventy-five years, having entered the service of Lord PALMERSTON at the age of six, and afterwards he continued in the service of Lord MOUNT TEMPLE and then in that of the Right Hon. EVELYN ASHLEY. Mr. ASHLEY showed his deep respect for his old servant by being present at the funeral. Among the gardeners present was Mr. CORNELIUS MEDLEY, aged eighty-eight and still at work, at his own wish. He has been employed in the same gardens for seventy-six years.

GARDENER APPOINTED A SCHOOL MANAGER.—At the annual general meeting of the subscribers to the Esher National Schools, Mr. E. BURRELL, of Claremont Gardens, was chosen as one of three foundation-managers for the ensuing three years.

Publications Received.—*Nature's Own Gardens*, written and illustrated in colour and line by Maud W. Clarke: Dent & Co.

LAW NOTES.

WORKMEN'S COMPENSATION POLICIES.

So much has already appeared in the daily papers on the subject of the Workmen's Compensation Act, 1906, that it is scarcely necessary to deal in detail with the provisions of this Act which will come into force on July 1 next. At the same time, the fact that so much matter has already appeared in print has apparently tended somewhat to confuse the general reader, and it may therefore be useful first to clear the air a little, and, secondly, to consider the all-important point of the form of policy which is likely to give due protection to an employer.

CASUAL EMPLOYMENT.

In the first place it should be borne in mind that householders and others, in their *private* capacity, are liable for injuries to all classes of workpeople employed by them, whether in the capacity of clerks, foremen, servants, &c., unless their earnings exceed £250 per annum, or unless they are only "casually" employed. (On the other hand, where a person employs a workman for the purposes of the employer's trade or business, he is liable to compensate the workman for injuries sustained, whether he is at the time only "casually" employed or not.) The Act does not state what is to be deemed "casual employment," and many interesting questions have already been discussed in the public journals on this subject, whether, for instance, a jobbing gardener or a person who comes to mow the lawn or to clean windows, either intermittently or at due intervals, can be deemed to be "casually" employed. No authoritative statement can possibly be made until questions of this kind have come up in the law courts for decision by the judges, and, by means of insurance, all employers will presumably be wise enough to leave litigation on the subject to be fought out by the company with whom their insurance is effected. What the public have to do is to see that they are protected in the case of injuries to workpeople of all kinds, if any case should afterwards be found to come within the Workmen's Compensation Act, 1906. The proper method of meeting the difficulty is to arrange with the insurance company to undertake all possible liability. Most of the companies are prepared to do this, provided the insurer pays an additional 25 per cent. to cover persons occasionally (though in strictness, perhaps, not "casually") employed, over and above the premium paid for the insurance of those persons who are in the insurer's regular employment. For instance, supposing a householder has four servants, the average charge of the insurance company will be 3s. (in some cases 2s. 6d.) per head, that is to say, 12s. in all. For an additional 3s. (that is to say, 25 per cent. added on to this premium) the insurance company undertakes to protect the insurer against accidents to

persons who, though not employed permanently, may be deemed to be something more than "casual" workmen. It should be borne in mind that workpeople under the age of 21 years are entitled to compensation with this additional advantage, that they are entitled to full wages instead of half wages) where the earnings of the minor in question do not exceed 10s. per week.

SUB-CONTRACTING.

As already explained, persons who employ workpeople for the purpose of their trade or business are liable to pay compensation, whether the workman is wholly or only "casually" employed at the time of the accident; but in connection with trade matters there is a further liability on the employer. The Act provides that where the trader (called the principal) contracts with another person (called the contractor) for the execution by or under the contractor of the whole or any part of any work undertaken by the principal, then the principal is liable to compensate the contractor's workman for injuries sustained in the execution of the work just as much as if the workman were employed direct by the principal himself. Suppose, for instance, that a firm of nurserymen, whom we may refer to as A. & Co., were to enter into a contract for laying out the grounds of an estate in the north of England. Instead of A. & Co. going up to carry out the work themselves, they might write to B. & Co., a firm in the north, and arrange for them to carry out the work at trade-prices on their behalf. If one of B. & Co.'s workmen is injured while the work is being carried out A. & Co. are liable to compensate him. It is true that A. & Co. are entitled to recover from B. & Co. any compensation which they may have to pay. But suppose B. & Co. should be a small firm without much capital, and suppose that the heavy claim resulting from the injury to their workman were to prove the last straw and land them in the Bankruptcy Court? In that case A. & Co. might find themselves unable to recover anything more than a small dividend from B. & Co.'s estate, but A. & Co. would still have to go on paying the compensation, or annuity as the case might be, to B. & Co.'s injured workman. Here, therefore, is a case where traders must be careful to protect themselves under their insurance policies.

FORM OF POLICY.

The following is a sample of the policy which some of the insurance companies are offering to insurers at the present time:—

THE X.Y.Z. ACCIDENT CORPORATION.

A. B. of &c. (hereinafter called "the Employer") having paid to the above Corporation the sum of £ : : on account of premium for the Indemnity hereinafter mentioned, it is hereby agreed as follows:—

The Corporation indemnifies the Employer fully and completely against his or her entire liability however protracted under or by virtue of The Workmen's Compensation Act, 1906, The Employers' Liability Act, 1880, Lord Campbell's Act, 1846, The Common Law, The Workmen's Compensation Acts, 1897 and 1900, in respect of any injury, fatal or non-fatal, which, at the time or times during the continuance of this Policy, shall happen to any servant whilst in his or her employ, and performing work for him or her.

The Employer by the acceptance of this Policy agrees—
To give notice to the Corporation at its Head or Branch Office of any claim, either verbal or in writing, made upon him.

To render the Corporation all reasonable assistance in connection with any accident, or any claim which may arise under this Policy, and at the expiration of each year of insurance to furnish a statement showing the total number of persons employed during the year, and to pay to the Corporation any additional premium due in respect of the persons so employed.

This Policy shall be in force for twelve calendar months from the date hereof.

Dated this day of 1907.

CONDITIONS INDORSED.

This reads comprehensively enough, but the insurer must not be content to rely on such simple wording. Let him look on the back or at the foot of his policy and carefully consider any further conditions indorsed thereon. It will be found in many cases that the conditions are so far reaching and complicated that he is left practically at the mercy of the insurance company as to whether or not they choose to pay any claim which may arise. The conditions indorsed on the policy should be as few and as clear as possible. The insurer should not agree to give notice of an accident to his servant within a fixed period of days; he should merely undertake to give notice within a reasonable

time. He should agree to render all reasonable assistance to the insurance company in the event of a claim arising and also to furnish a periodical statement of the persons in his employ, paying the additional increase in case of the number of servants being augmented. These conditions, if properly worded, are reasonable enough, but any additional conditions should be most carefully and closely checked and objected to if necessary. The wise insurer will therefore demand to see the full form of policy with the conditions indorsed before signing any proposal form. The indemnity should also cover "earnings" (not merely "wages") as well as all expenses of litigation.

Furthermore, it should be borne in mind that the mere act of insurance does not release an employer from his responsibility. The policy offers him a personal indemnity, but (except in the case of the insurer's own bankruptcy) this has nothing to do with the workman. He is entitled to look to the employer personally, and even if the insurance company should afterwards fail or be wound up the employer must go on paying to the injured workman what will be, in some cases, an annuity for life. The moral is, therefore, two-fold. Everyone should be careful to give the conditions of his policy the most serious attention, and should also be very careful not to insure with any company whose financial standing and reputation for fair dealing is not absolutely above reproach.

Finally, the insurer should take care in his proposal form to describe his workpeople by reference to their position and not by name. The description should be, for instance, head gardener, three under gardeners, cashier, clerk, &c., and Christian and surnames should on no account be given, as otherwise notice of every change would have to be given to the insurance company. *H. Morgan Veitch.*

HYBRID PLUM.

To Messrs. Laxton, of Bedford, we are indebted for specimens of their hybrid Plum, raised out of a Japanese Plum by pollen of a Peach. The flower generally is more like that of a Peach, but is sterile, owing to the abortion of the ovary, so that if all the flowers are similarly barren there would, of course, be no fruit, and the value of the hybrid in so far is nought, though as a flowering shrub it may be valuable. The drawing of the flowers made by Mr. Worthington Smith well shows the intermediate character of the hybrid, and should be useful to young gardeners desirous of understanding the construction of the Peach and Plum flowers, on which account a short explanation may be desirable. The upper series of illustrations shows in the left corner a cluster of Peach flowers of the large-flowered section, similar to those of a single Rose. Other Peaches are characterised by the presence of much smaller blossoms. To the right is shown the back of the flower, with the five sepals or calyx-lobes covered with fine hairs. The sepals encircle the bases of the five petals. In the centre of the cut is shown a flower sliced downwards through the centre and magnified two diameters. It is borne on a short stalk, provided all the way up with boat-shaped bracts. The vase- or cup-shaped flower-tube is well shown with the sepals, petals, and stamens springing from the margins of the tube, around and not beneath the ovary, as they would be in a Buttercup. At the bottom of the flower tube is seen the ovary prolonged into a long style, ending in a button-like stigma and containing a single ovule, the future seed. The oval pollen grains are shown as seen magnified 120 times; each is oval with a single furrow. In the centre row the Plum flowers are shown in a similar manner. It will be seen that, except in size and colour of petal, they are almost exactly like those of the Peach, so much so that the two flowers evidently belong to the same genus (*Prunus*). A difference is, however, observable in the presence of a comparatively long, slender stalk to the flower,

the bracts of which are at the base only and not extended up the stalk to the base of the flower as they are in the Peach. The difference in the size of the pollen-grains drawn to the same scale is also noteworthy.

The bottom of the illustration is devoted to the representation of the hybrid. The flowers are more like those of the Peach, but the long flower stalk is like that of the Plum. The calyx is shown as destitute of hairs, although they are present in both parents. The slice through the flower shows, as we have said, that the ovary is defective; the pollen, too, is small and irregular in size. The pollen of the hybrid might, however, be used in fertilising other flowers, though the hybrid itself is incapable, owing to structural defect, of being fertilised.

The illustration of the leaf of parents and hybrid is taken from the *Journal of the Royal Horticultural Society*.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

SPRING FLOWERS.—Early Rhododendrons are flowering very freely this season. *R. Noble-anum*, *R. N. album*, *R. caucasicum*, *R. alta-clarense*, and *R. niveum* are now in full flower. *Rhododendron campanulatum* is just opening its flowers, and is quite hardy here when surrounded by large forest trees. It is remarkably fine when in flower. I have never seen so many flowers on our outdoor Camellias before, and they are earlier than usual, although up to the present many of the smaller plants have been unusually late. Hyacinths are now at their best, but the best show of "spring bedding" plants will not be for quite another fortnight. The Duchess Garden is now opened again to visitors daily on every day except Sundays, also the woodland walks and drives, but all vehicles are now prohibited. *W. H. Divers, Belvoir Castle Gardens, Grantham, April 13.*

CARNATION IMPOSTORS.—So long as persons will buy Carnation plants from hawkers, so long must they expect to be victimised. The sort of "trade" thus indulged in is by no means novel, and of my own knowledge for the past 40 years hawkers have had single Carnations raised annually from seed, but specially selected, because having broad foliage. Purchased wholesale at about 8d. per dozen, and under the local trade designation of "jacks," they have been retailed to credulous customers at prices varying from 3s. to 5s. per dozen. One grower at Feltham, Middlesex, used to raise and plant out every year from 15,000 to 20,000 of these "jacks," and did a wonderful trade with them in the spring. This grower invariably selected and lifted to plant in a compact block for seed production, about 200 plants that had the broadest leafage, as these maintained that character of the strain and thus helped the hawkers to impose them on purchasers as choice named varieties. *A. D.*

THE AGAPANTHUS AS A HARDY PLANT.—*Agapanthus Mooreanus*, according to botanists, is but a form of *A. umbellatus*, but from a garden point of view it is quite distinct, having narrower leaves, more slender stems, and smaller flowers. It is also much hardier; I know of its flourishing as a hardy plant in gardens well north, and even in exposed situations. In my former and present gardens it is quite hardy and increases with much freedom, without any protection, in a somewhat dryish soil. *A. umbellatus*, the type, is, however, more tender, and it is not everywhere in Scotland that it will prove hardy. In the south-west it is fairly hardy, and I was much interested the other day in seeing how well it has survived a most trying winter in the garden of Captain Hope, R.N., at St. Mary's Isle, Kirkcudbright. At St. Mary's Isle the *Agapanthus* are planted rather deeply at first, so that the frost has little effect until the plants become established. The *Agapanthus* should be more largely planted and cultivated as a hardy plant in the milder districts of these islands. *S. Arnott, Dumfries.*

SCOLIOPUS BIGELOWI.—This plant is now flowering in the Alpine garden at Leonardslee. The flowers are solitary and on radical peduncles, which are 3 to 5 inches in length.

Their colour is purple and green, with purple stripes running down the petals. The plants here are cultivated under a cool rock, which affords them a certain degree of shelter. *W. A. Cook.*

TO PRUNE, OR NOT TO PRUNE.—I was much interested in the leading article (p. 204) on this subject, and am quite in accord with the views therein expressed. A moderate amount of pruning, including the removal of all cross branches, the pinching of shoots, and the thinning of the growths to admit light and air, is beneficial. During the past ten years I have planted hundreds of young fruit trees of all descriptions—

examples of non-pruning in the neglected orchards of the country. Is this a system to be encouraged? On taking charge of a garden some years ago in a good fruit-growing district, I succeeded in convincing an advocate of non-pruning of the fallacy of his belief, and the following autumn I made a start, thoroughly thinning and cleaning the trees, the result in two or three years being marvellous, and the trees were considered an object-lesson in the district. In pruning these trees I left as much young wood as possible, being a believer in the extension system where practicable. *A. D.* (p. 223) suggests trials of the two systems, but have we not sufficient examples all around us in the unpruned

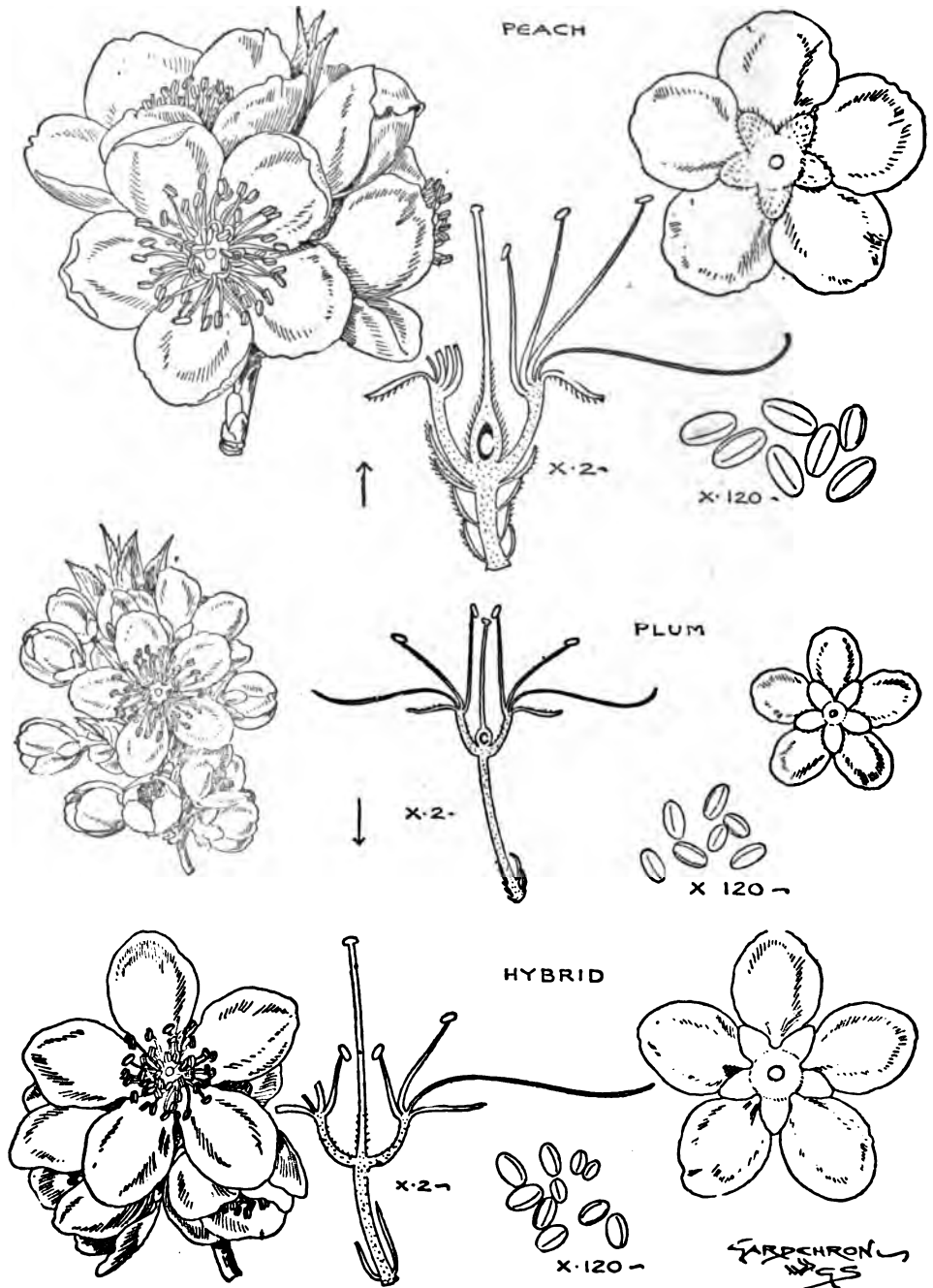


FIG. 109.—HYBRID PLUM-PEACH.

orchard, bush, and wall trees, the majority being Apples, and, having planted them, have pruned them, and afterwards successfully exhibited the fruit in open competition at the national fruit shows. I am not an advocate, however, for practising pruning such as is sometimes done, when every particle of young wood is cut away. A point I do not understand in Mr. Spencer Pickering's statement (quoting from page 223) is "when there is no pruning, the crops are twice as great as where moderate pruning is adopted, and four times as great as where hard pruning is practised." It is not quantity of fruit that pays, but quality, and one can see on every side

orchards, on the one hand, and the moderately-pruned trees of the practical market-grower on the other? I imagine he is right in thinking "that many of your readers would ask if the game is worth the candle." *Moderate Pruner.*

CALTHA POLYPETALA.—This is a form of *Caltha palustris*, but it is much larger than the type both in foliage and flower. It grows better in the water than out, and if planted near the bank of a lake or pond it will soon increase rapidly. Being early in flower, it makes a display when flowers are greatly appreciated. *W. A. Cook.*

MISTLETO.—The Lime tree mentioned by Mr. A. Dean, on p. 240, as bearing contorted growths caused by this parasite, was cut down some three years ago, owing to its dying condition. Even more curious examples were the three large Poplars, over 90 feet high, standing some 800 yards to the south-west of Dropmore House. The main branches of these huge trees were, in some cases, covered with masses of the parasite. In these cases all top growth ceased, and the limb gradually died away. Mr. Elwes will doubtless remember these old trees, for he was very interested in them when he visited Dropmore. The Mistleto grows here on the Lime, Poplar, Thorn, Acacia and Apple. *Chas. Page, Dropmore Gardens.*

TREE PÆONIES IN POTS (see also p. 253).—I had pleasure in reading, p. 224, of the exhibit of Tree or Moutan Pæonies staged at the Horticultural Hall on April 2. I do not know of more charming plants at this season of the year for placing in a drawing-room, corridor or conservatory. We have grown them at Dingley for five seasons and I think they are admired more each year. Our plants came direct from Japan, and they were potted into 8 and 9-inch pots in a mixture of peat, loam, leafmould, sand, and old

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 16.—An unusually extensive exhibition was made in the Vincent Square Hall at the fortnightly meeting on Tuesday last. The tables and floor of the building, including the recesses, were well furnished with contributions that represented almost every plant and flower now in season. There were many collections of choice Narcissus, and it is hardly likely that these flowers will be shown so well in this hall on more than one further occasion this season. At the next meeting, however, they should constitute a prominent feature. This committee recommended two Awards of Merit to novelties, the varieties so distinguished being Queen of the West and Atalanta.

Orchids were plentiful and brilliant; one novelty was selected by the ORCHID COMMITTEE to receive a First-Class Certificate, and to three others the Award of Merit was recommended.

The FLORAL COMMITTEE recommended one First-Class Certificate and five Awards of Merit. An extensive exhibit of Narcissus growing in the form of a grass-covered mound was an

son, C. E. Pearson, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, W. J. James, F. Page Roberts (Rev.), C. T. Drury, Geo. Gordon, George Paul, and R. Hooper Pearson.

Messrs. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton, staged a collection of choice exotic Ferns. The exhibit was rich in Adiantums, including the rare *A. sancta Catherine*, somewhat like *A. tenerum Farleyense*; *A. curvatum*, with branched fronds and having pinnae not unlike those of a *Nephrolepis*; *A. macrophyllum*, of splendid colouring; there were also *Lomaria gibba*, with a handsome head of new fronds, and many others of equal beauty. (Silver Banksian Medal.)

Messrs. CRAGG, HARRISON, & CRAGG, Merivale Nurseries, Heston, Middlesex, showed a clean, healthy collection of succulent plants in small pots, representative of many of the genera of these curious plants. (Bronze Flora Medal.)

Messrs. THOS. CRIPPS & SONS, Tunbridge Wells, Kent, made a fine show with large-flowered Clematis and ornamental Acers (Maples). Among the Clematis were the beautiful Nellie and Marcel Moser, also Symeana, with heliotrope-coloured flowers; Lady Caroline Nevill, also heliotrope, but with a darker rib

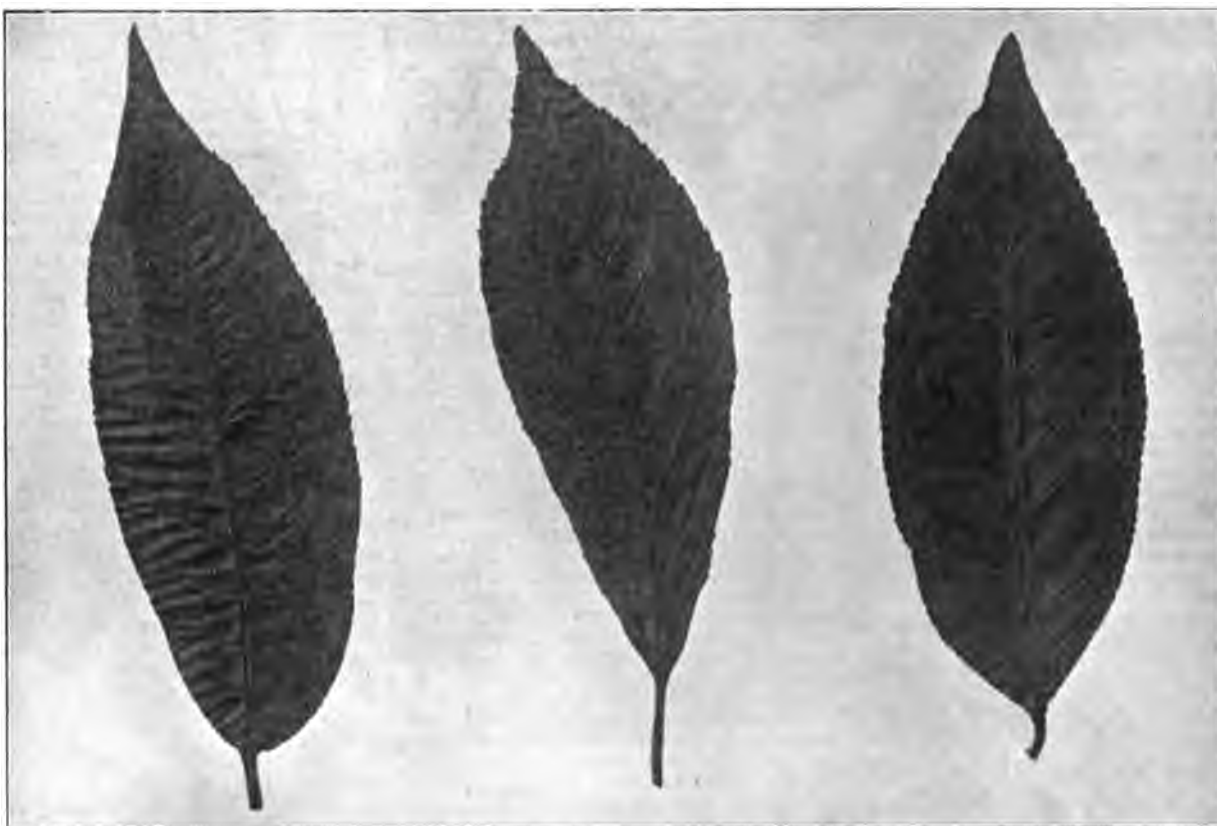


FIG. 110. (For text see p. 255.)

LEAF OF PEACH.

LEAF OF HYBRID.

LEAF OF PLUM.

(From the *Journal of Royal Horticultural Society*.)

mortar rubble. The last two seasons the plants have been well top-dressed only, and the drainage overhauled, but when growing they have been fed with various liquid manures. The specimens have from three to five blooms on a plant. The following varieties, with their colours and size, will be found excellent for pot culture: Gabisan, single, white, tasselled yellow anthers, 10 inches across; Kumoi-dsuru, deep purple, 12 inches; Shiro-kagura, white, purple feathery at base, 10 inches; Kumoma-no-tsuki, rich port wine colour, 9 inches; Michi-shiba, deep carmine, 13 inches; Renkaku, white, 12 inches; Kagurajishi, pink, 12 inches; Ruriban, rich purple, 12 inches; Adzumakagami, deep carmine, 12 inches; Shoki-kagura, satiny rose, 12 inches; Saigyō-sakura, delicate satin pink, 10 inches; Adzuma-nishiki, crimson, shaded scarlet, fringed white, yellow base, 9 inches across. The greater number of the varieties have golden and primrose coloured anthers, which greatly add to the beauty of the flower. *F. Clifton, Dingley, Market Harborough.*

attempt at realism not previously made at these shows. It was very effective.

The FRUIT AND VEGETABLE COMMITTEE made no award. An exhibit of vegetables was shown by Miss M. H. DODGE, Loseley Park, Guildford (gr. Mr. R. Staward). Several new Apples were shown, also a new Rhubarb named Collis' Ruby; these, with a box of fruits of Strawberry Vicomtesse Héricart de Thury, from the gardens of A. W. SUTTON, Esq., Woolhampton, representing all that came before the committee.

At the meeting of Fellows, held in the afternoon, 60 new candidates were added to the roll of the Society, and two societies affiliated, after which Mr. R. H. Curtis lectured on "Rainfall in its Relation to Horticulture."

Floral Committee.

Present: W. Marshall, chairman; and Messrs. Geo. Nicholson, Jno. Green, T. W. Turner, C. R. Fielder, J. W. Barr, R. C. Notcutt, Jas. Douglas, J. F. McLeod, J. Jennings, Jas. Hudson, Arthur Turner, Chas. Dixon, W. Cuthbert-

son, C. E. Pearson, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, W. J. James, F. Page Roberts (Rev.), C. T. Drury, Geo. Gordon, George Paul, and R. Hooper Pearson.

Mr. L. R. RUSSELL, Richmond, Surrey, exhibited showy little plants of large-flowered varieties of Clematis, with Azaleas and standard plants of the dark-coloured Eva Rathke Weigela. We also noticed the interesting *Rhododendron racemosus*, the blue-flowered *Ceanothus thyrsiflorus*, and other flowering shrubs. (Silver Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, showed two separate exhibits. One was accommodated against the wall of the building, and consisted of showy flowering trees and shrubs. Tall standard plants of *Acacia longifolia* and *A. juniperina* were backed by still taller plants of *Cerasus serrulata* and *C. pseudocerasus* J. H. Veitch, and Palms. In the foreground were *Hydrangeas*, *Wistarias*, *Azalea carminata splendens*, Maples, &c. As a table

exhibit the same firm showed the dwarf Cineraria Antique Rose, a pleasing shade; the large, open-spaced Richardia Childsii grandiflora; varieties of Anthurium Scherzerianum, including some with spotted spathes; the Gloriosa jasminiflora, like a white-flowered Honeysuckle, and many other desirable plants. (Silver-Gilt Flora Medal.)

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, displayed Pelargonium Clorinda—some standard trained; the variegated form of Funkia Sieboldi, a popular parlour plant; hardy Ferns, showy Clematis, dwarf Roses, Pansies, and Statice profusa.

Messrs. H. CANNELL & SONS, Swanley, Kent, showed Zonal Pelargoniums better than ever. They had also some improved varieties of Primula obconica, a batch of Begonias of the semperflorens section, and a bright-flowered Tropaeolum named Kentish Fire. (Silver-Gilt Banksian Medal.)

Messrs. SUTTON & SONS, Reading, exhibited plants of their dwarf strain of Cinerarias, all of blue and pink shades: the dense, compact inflorescences quite covered the sturdy plants. In the same exhibit was a batch of the wild Ranunculus of Palestine, according to some authorities the Lily of the Field of Scripture; some pink Freezias, and a batch of Lachenalia tricolor. (Silver-Gilt Banksian Medal.)

A batch of Hippeastrums, all unnamed varieties, was staged by Mr. J. KINNICK, Edgbaston, Birmingham. Taken collectively, the group made a fine display. (Silver Flora Medal.)

Sir EDMUND LODER, Leonardslee, Horsham, Surrey (gr. Mr. W. A. Cook) occupied much space with Magnolias, Rhododendrons, Camellias, Magnolias, and Daffodils cut from the open. There were no fewer than 13 species, and varieties of Magnolias, the most interesting being a rose-coloured form of M. stellata. The varieties of Rhododendron and Camellia were very numerous. An interesting plant shown was Larix Griffithi, with fresh cones. (Silver Banksian Medal.)

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, London, N., showed greenhouse flowering plants in variety. The brush-like spikes of Metrosideros floribunda were conspicuous objects; the flowers of Lotus peliorhynchus hung in festoons over the table, and above were Acacias, Ericas, Cyclamen, Eriostemon nerifolium, Gerbera Jamesoni, and other greenhouse plants. A brilliant array of winter-flowering Carnations completed the display. (Silver Flora Medal.)

Messrs. R. and G. CUTHBERT, Southgate, London, N., set up a fine bank of forced flowering trees and shrubs, having heavily-flowered Lilacs, standard trained; and species of Cerasus over Azaleas, dwarf Lilacs, with Maples, Ferns, and Grevillea robusta interspersed. (Bronze Banksian Medal.)

Mr. W. E. WALLACE, Dunstable, Beds., again displayed the charming Rose Richmond, in company with a few others, including Mme. Abel Chatenay, Lady Roberts, Pharisae, &c. (Silver Banksian Medal.)

Messrs. FRANK CANT & Co., Braiswick Rose Nurseries, Colchester, had tall plants of Rambling Roses of the varieties Wedding Bells and Philadelphia Rambler, and in front a few blooms of tea and hybrid varieties. The pillar Roses were abundantly flowered, and of the type of Crimson Rambler.

Seldom before have forced Roses been better displayed than were those shown by Mr. GEO. MOUNT, Canterbury. The freshness of the blooms was remarkable, and for vigour of stem and foliage, substance of bloom, brightness of colour and taste in displaying them, nothing but the highest praise can be bestowed. The exhibit required a large table for its accommodation, and it was crowned in the centre with a tall epergne, in which were the white Frau Karl Druschki and the red Liberty intermixed. A bank of Catherine Mermet and La France on either side of the centrepiece, but sufficiently far away to allow of the continuity being broken with dwarfier vases, and with boxes in front, and every bloom a specimen, repeated with other banks of Mrs. John Laing and Ulrich Brunner afforded a veritable feast of Roses. A selection of the varieties included Mme. Abel Chatenay (charming in the bud), Anna Olivier,

Bridesmaid, the new Richmond, and Prince de Bulgarie. (Gold Medal.)

Messrs. W. PAUL & SON, Waltham Cross, Herts, exhibited pillar Roses of great beauty; tall plants of the white Waltham Bride were shown with the flowers hanging in great clusters, and near by was the charming single white Nymph, studded along its drooping sprays with the white blossoms. A batch of the rich red Warrior in the centre of the group gave a touch of colour to the display, and below were cut blooms of new varieties of Continental origin. A climbing variety of merit is Crepuscule, the flowers are somewhat of the shade of the popular W. A. Richardson. (Silver Flora Medal.)

Messrs. W. CUTBUSH & SONS, Highgate, London, N., showed Polyantha Roses of such kinds as Mrs. F. W. Flight and Mrs. W. Cutbush, and a naturally-arranged exhibit of Alpine and rock-garden plants. The exhibit of these latter plants was crowned with Azaleas, Spiræas, Magnolias, Rhododendrons, and other dwarf shrubs. Some interesting plants were in flower, Edraianthus serpyllifolius has procumbent growths terminating in dark blue Campanula-like flowers; Incarvillea grandiflora has large rose-coloured flowers; Xanthoceras sorbifolia was shown well. Adjoining this display, Messrs. CUTBUSH had Carnations in all the leading varieties of the winter-flowering type. (Bronze Flora Medal.)

Messrs. GEO. JACKMAN & SON, Woking, Surrey, showed Alpine plants in variety, among which was a batch of Primula Cashmeriana, nicely flowered. A conspicuous plant was Clematis indivisa lobata. We also noticed the double-flowered Caltha palustris, Amelanchier canadensis, Peaches, Magnolias, Ribes, &c.

CRAYEN NURSERY Co., Clapham, Yorkshire, showed a collection of Alpines very rich in Primulas—P. Clusiana, P. nivalis, P. viscosa, P. marginata, P. calycina, P. spectabilis, and others, all in the best condition of culture.

A small exhibit of Alpines was shown by Messrs. JOHN PEED & SON, West Norwood; and also by the Misses HOPKINS, Barming, near Maidstone, Kent.

Messrs. R. WALLACE, Kilnfield Nurseries, Colchester, showed hardy plants in great variety. We noticed the dwarf Tulipa Lownei, with pale rose-coloured petals; Mertensia virginica, Primula verticillata in several forms, Daphne cneorum, and Tulips, Fritillarias, Crown Imperials, Daffodils, and a host of other spring flowers, all in the best condition.

Mr. G. REUTHE, Hardy Plant Nursery, Keston, Kent, displayed seasonable Alpine flowers, many trusses of hardy Rhododendrons of richly-coloured varieties, several Camellias, Daffodils, Primroses, &c. An interesting plant was observed in Lathraea purpurea, the specimen being parasitic, in this instance, upon the Willow. (Bronze Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants, exhibited an assortment of early-flowering hardy and Alpine garden plants. He had the double Marsh Marigold in good condition, Erythronium revolutum Watsoni, Clematis balearica, the double-flowered Celandine, Ribes speciosum, Crown Imperials, Anemones, Primroses, including the rich crimson variety Pompadour, &c. (Bronze Flora Medal.)

Messrs. DOBBIE & Co., Rothesay, N.B., and Mark's Tey, Essex, showed a fine strain of Polyanthus in varieties named from their colours, some improved forms of Primula Sieboldi, and large, rich-coloured Pansies and Violas, all of first-class culture.

Mr. JAMES DOUGLAS, Edenside, Great Bookham, Surrey, displayed between 50 and 60 choice Auriculas, almost all of his own raising. Some new kinds will be found under Awards, and of the others the best were Standard Bearer, May Day, Lycidas, Brunette, Bronze, Sea Eagle, Admiration, Zingara, and Brightness.

Messrs. T. S. WARE, Ltd., Ware's Nursery, Feltham, showed a collection of hardy flowers, including Alpine species, and some good blooms of Carnations. The rare flowering Satyrium coriifolium was represented by three plants in flower. We also noticed Lewisia Tweedii, with campanulate flesh-tinted flowers; Dodecatheon Hendersoni, Iris fimbriata (syn. japonica), &c. (Bronze Flora Medal.)

Mr. A. R. UPTON, Hardy Plant Nursery, Guildford, showed pans of seasonable hardy flowers, including a fine specimen on Anemone ranunculoides heavily flowered.

Mr. GEO. KERSWILL, St. Thomas, Exeter,

exhibited a large box containing the peerless Gentiana acaulis in exceptionally good condition.

Lady HINDLIP, Hindlip, Worcester (gr. Mr. Bayley), exhibited a dozen vases of Sweet Peas.

Hon. WALTER ROTHSCHILD, Tring Park, Tring (gr. Mr. Dye), showed an inflorescence of Crinum scabrum. The umbellate inflorescence carried four flowers; the flower-segments are white, with a reddish-brown veining down their centres, and with recurving tips.

Mrs. BROCKLEHURST, Sudeley Castle, Winchcombe, showed three pot plants of Tritonia crocata Prince of Orange; the name is indicative of the colouring.

AWARDS.

FIRST-CLASS CERTIFICATE.

Agapeles speciosa.—This is the new red-coloured species figured in our last issue. It was recommended a Botanical Certificate by the Scientific Committee at the previous meeting, when it was also submitted to the FLORAL COMMITTEE under the name of Thibaudia sp., but both bodies withheld any award until the species had received a name. Shown by J. T. BENNETT POE, Esq., Holmwood, Cheshunt.

AWARDS OF MERIT.

Auricula Brightness.—A very pretty purple-coloured Alpine variety, similar to Standard Bearer.

A. Miss Berkeley.—An Alpine variety of very large size and good form; colour, maroon purple with white eye. Both varieties were shown by Mr. JAS. DOUGLAS, Edenside Nurseries, Bookham.

Freesia Tubergeni Amethyst.—This variety has pale lilac-coloured flowers of considerable size, being much larger and paler than those of F. Tubergeni, which latter is described as from a cross between F. refracta alba and F. Armstrongii. The variety Amethyst is from F. Tubergeni crossed back again on F. refracta alba. Shown by C. G. VAN TUBERGEN, JUN., Haarlem, Holland.

Primula Cockburniana.—This is the small orange-flowered Primula which was figured and described in our issue for May 27, 1905, p. 331. It is one of the plants introduced through the agency of Messrs. JAS. VEITCH & SONS from Western China. The plant has already received a Botanical Certificate from the Scientific Committee. So far as it has been proved, the value of the species is in its colour, as it is a weak grower. It may be expected that use will be made of it for crossing with other species. Shown by Messrs. JAS. VEITCH & SONS, LTD.

Rose Pharisae.—This is one of the best pink bedding Roses, and is generally well known. Shown by Mr. W. E. WALLACE, Eaton Bray Nurseries, Dunstable.

CULTURAL COMMENDATION.

Tchihatchewia isatida.—Lady EMLYN, Frensham Hall, Haslemere, showed a pot plant of this Cruciferous species from Armenia. A figure of the species was given in *Bot. Mag.*, tab. 7608, from a plant which flowered at Kew. The plant shown was considered to be representative of first-class cultivation. We hope to refer to the species in a subsequent issue.

Narcissus Committee.

Present: H. B. May, Esq. (chairman); and Messrs. A. Kingsmill, Robert Sydenham, A. R. Goodwin, W. F. M. Copeland, J. Pope, G. Reuthe, Alex. M. Wilson, R. Wallace, W. T. Ware, P. R. Barr, F. W. Currey, G. H. Engelheart (Rev.), Chas. Dawson, P. D. Williams, G. W. Leak, and C. H. Curtis (hon. secretary).

A group of Narcissi staged by Miss F. W. CURREY, Lismore, Ireland, attracted much attention, not merely because of its extent, but also on account of the choice flowers it contained. Among the choicest and best was the very distinct Duke of Leinster, an incomparabilis type, having a large spreading cup of pure and uniform orange. It is not a flame colour or one of those varying tones of orange, pale at the base, with a more intense coloured margin, but is of a uniform shade throughout. White Knight, the whitest of all white Ajax kinds, on opening, is a drooping flower of refined and beautiful appearance. Then there was the Geraldine, an incomparabilis, with its fiery flame-coloured cup and spreading creamy wings, Maggie May, Chaucer (poeticus), and Atalanta (see Awards). (Silver-Gilt Banksian Medal.)

Mr. CHARLES DAWSON, Gulval, Penzance, also

staged a very choice collection. Ibis (poeticus), Homespun (figured in our last issue), Lord Roberts (a fine Ajax), White Slave (of the Engleheartii type, with yellow or lemon cup), Cossack, Red Cap, and Buttercup, all distinct and beautiful flowers. (Silver-Gilt Flora Medal.)

Messrs. HOGG & ROBERTSON, Dublin, had a large assortment of standard varieties of good quality.

Miss R. SPURRELL, Bessingham, Norwich, had a small set, in which Mrs. Edmund Harvey, a Leeds flower, with delicately margined cup of citron, was noted; it is a delicate and pretty flower.

Messrs. BARR & SONS, Covent Garden, had a good display of the best kinds, also several novelties. Of the latter, Seraphim is a big, pale bi-color, a huge Weardale (with paler cup, but in every way a giant), Loveliness and Peter Barr (both white Ajax kinds), Stradivarius (with the drooping triandrus flowers), Horace (a fine Poet's Daffodil), and Janet Image, Hamlet, &c. (Silver Flora Medal.)

Rev. G. H. ENGLEHEART, Dinton, Hants, had an assortment of white seedling forms.

Rev. G. P. HAYDON, Westbere, Canterbury, had perhaps the most beautiful novelties in the show, and they were more interesting, because the parentage in not a few instances was given. Pearl of Kent, for example, seen for the first time a year ago, is a fine drooping white Ajax, a strong flower in every way, and, we were informed, it is a splendid grower. Dropmore, also an Ajax kind, has the most pronounced droop of any trumpet kind we know. Its parents are Monarch and Mme. de Graaff. Our Bessy, the result of crossing Mme. de Graaff and the Pyrenean poeticus, has produced a pure Nelsoni, while China Ware and Leiden Jar are other distinct and beautiful kinds. (Barr's Silver Cup.)

Mr. F. HERBERT CHAPMAN, Rye, obtained a Silver-Gilt Banksian Medal for an assortment of choice kinds, in which culture and freshness were points of the highest importance. The finest flowers were White Queen, Weardale Perfection, Lady Margaret Boscawen, King Alfred, and Virgil.

Messrs. POPE & SON, King's Norton, contributed many good sorts, the large-flowered King's Norton being of the number. (Silver Banksian Medal.)

Sir JOSSLYN GORE, Bart., Sligo, secured a Silver Flora Medal for a choice assortment, in which the several sections of Narcissi found many representatives.

Messrs. BULL & SON, Chelsea, displayed a general collection of well-known varieties.

Some interesting and beautiful seedling varieties were presented by Mrs. BACKHOUSE, Sutton Court, Hereford. The more remarkable were Zoe, a giant flower of the Queen of Spain type, and Lord Kitchener, a very handsome bi-color of Sir Watkin form, and these, with White Witch and Snowdon, were of exceptional size and great merit.

Messrs. R. and G. CUTHBERT, Southgate, arranged a display suggestive of a grass bank or slope studded with Daffodils. Real turves of grass were used, which made the exhibit appear very natural.

A fine assortment of Daffodils was staged by Messrs. R. H. BATH & CO., LTD., Wisbech, and here many of the finest things of commerce were to be seen. (Silver Flora Medal.)

Messrs. WALLACE & CO., Colchester, also staged a very nice lot of these flowers in the newer sorts.

Sir E. LODER, Bart., Leonardslee, Horsham (gr. Mr. W. A. Cook), had a beautiful lot of the better-class varieties, White Queen, King Alfred, and other handsome sorts being staged in big bunches.

AWARDS OF MERIT.

Narcissus Queen of the West.—A giant self-yellow Ajax kind of noble proportions. The huge trumpet or crown recalls King Alfred, more especially in the handsome reflex of the brim, while the segments of the perianth are inclined to be flat and spear-shaped. The colour is of lemon yellow, and the plant is of giant stature. The parentage is not known, though there is more than a suggestion of *N. maximus* in the crown. It is certainly one of the biggest flowers we have seen. From WALTER T. WARE, Ltd., Bath.

Narcissus Atalanta.—An Irish raised Daffodil of great beauty and charm; a flower in which

all that is good in the lovely Mme. de Graaff is seen. The perianth segments are white—not the whiteness seen in poeticus—and of large size, but it is, we think, in the creamy trumpet or crown and with the sturdy bearing of the flower generally that much of the beauty exists. More drooping than Mme. de Graaff, and larger, it is a flower full of grace and refinement. From Miss F. W. CURREY, Lismore, Ireland.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, F. M. Ogilvie, W. Boxall, F. J. Hanbury, G. F. Moore, C. J. Lucas, R. G. Thwaites, T. W. Bond, W. P. Bound, A. Dye, H. T. Pitt, A. A. McBean, H. G. Alexander, W. Cobb, J. Charlesworth, W. H. White, W. H. Young, H. A. Tracy, W. Bolton, W. A. Bilney, H. Ballantine, and F. J. Thorne.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, staged a group composed principally of hybrid Orchids of their own raising, Odontoglossums being freely represented. In the centre was a varied selection of *O. Rolfeae* varieties, and interspersed were fine forms of *O. Ossulstoni*, *O. ardentissimum*, *O. Othello*, and other hybrids; good forms of *O. crispum*, *O. Wilckeanum*, &c. There were also a number of showy *Laelio-Cattleya* Wellsiana, an equally good lot of *L.-C. Dominiana* and *L.-C. Mercia*, and a dark form of *Cymbidium l'Ansoni*, the new *Miltozia Hyeana*, *Cattleya intermedia alba*, *Masdevallia Chestertoniana*, some nearly white *Brasso-Cattleya Digbyano-Schröderae* and other fine hybrids. (Silver-Gilt Flora Medal.)

Messrs. JAS. VEITCH & SONS, LTD., King's Road, Chelsea, staged an effective group, the leading plant in which was their superb *Brasso-Cattleya-Laelia Veitchii* (see Awards). Other special plants were the handsome *Odontoglossum ardentissimum* *Lamus*, for which they gained an Award of Merit, March 28, 1905; a very dark and brightly-coloured *Laelio-Cattleya Canhamiana*; a specimen *Dendrobium thyrsiflorum* with six spikes; a good selection of *Cattleya Schröderae*, showy *Odontoglossums*, and other handsome species. (Silver Flora Medal.)

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. Davis), staged a very fine group of *Cattleya Schröderae*, the plants in some cases bearing ten to eighteen flowers, which, in the different varieties, varied from bluish-white segments and yellow throat to light rosy-lilac, with an orange-coloured disc to the lip, and all were fragrant. One exceptionally distinct variety had a large violet crimson blotch on the lip. In the back of the group were finely-flowered plants of *Dendrobium Wardianum*; the distinct *Cattleya intermedia* Fowler's variety. We also noticed the violet-lipped *Zygopetalum Perrenoudi* and the handsome variety "Cecil Rhodes"; the beautiful white-petalled *Cattleya Luddemanniana Stanleyi*, which had previously received a First-Class Certificate; and the large, creamy-white *Cymbidium* J. Gurney Fowler of unrecorded parentage, but one of the finest hybrid *Cymbidiums*; the broad lip bears a zone of dark purple spots. (Silver Flora Medal.)

C. J. LUCAS, Esq., Warnham Court, Horsham (gr. Mr. Duncan), showed excellent forms of *Odontoglossum crispum*, principally of the white type, but a few were spotted. *O. crispum* Jennie is a pretty variety, with spotting on the sepals. The group also included *Odontoglossum Othello* (see Awards), two pretty forms of *O. Ossulstoni*, *O. Rolfeae*, and *O. Hallii*. (Silver Flora Medal.)

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. Day), showed the very remarkable *Odontoglossum ardentissimum* "Herbert Goodson" (see Awards), some finely-coloured *Laelio-Cattleya luminosa* and *L.-C. Dominiana*; a plant of *Angraecum sesquipedale*, with five flowers, several specimens of the white *Cattleya intermedia nivea*; *Laelio-Cattleya highburyensis*, &c. (Silver Flora Medal.)

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, put up an extensive group, in which was a varied selection of hybrid *Dendrobiums* and *Cypripediums*. Forms of *Dendrobium Venus* and *D. Sibyl* were specially attractive; other plants noticed were *Odontoglossum excellens*, some hybrid *Zygopetalums*, *Zygo-Colax*, and *Cypripedium Maudiae*. (Silver Flora Medal.)

Messrs. SANDER & SONS, St. Albans, showed the beautiful *Cymbidium Sanderæ* (C. Parishii *Sanderæ*), illustrated in the *Gardeners' Chronicle*, May 28, 1904, p. 338.

R. I. MEASURES, Esq., Camberwell (gr. Mr. Smith), showed two specimens of his pretty hybrid *Cymbidium Lowianum*.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, staged a group in which were a fine plant of *Cattleya amethystoglossa*, several good *C. Schröderae*, *Cattleya Lawre-Mossiae*, *Lycaste Skinneri alba*, *Bifrenaria Harrisoniae*, *Coryanthes speciosa* and hybrid *Cypripediums*, the most remarkable of which was *Cypripedium E. J. Seymore* (callosum x *Prewettii*). A very large flower of distinct shape, the large upper sepal being pale green with a white margin and marked with dark purple lines; the decurved and broad petals and lip are tinged with brownish rose.

Messrs. STANLEY & CO., Southgate, arranged a small group, in which were very good *Cattleya citrina*, *Oncidium Marshallianum*, *O. sarcodes*, *Odontoglossum crispum*, *O. Edwardii*, &c.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent *Laelio-Cattleya stellata* (*L. xanthina* x *C. intermedia alba*), a hybrid approaching *L. xanthina* in size and shape, but with greenish sepals and petals and white lip, with a rose blotch on either side of the front lobe and with some rose veining.

J. T. BENNETT-POE, Esq., Holmewood, Chesham (gr. Mr. Downes), showed *Cymbidium Colmaniae flavescens*, a yellowish-white hybrid.

Major G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. Alexander), showed several fine Orchids (see Awards), including *Brasso-Cattleya Cordelia* (*C. intermedia* x *B. Digbyana*).

DE B. CRAWSHAY, Esq. (gr. Mr. Stables), sent the new *Odontoglossum Iago* (*Harryanum* x *Hunnewellianum*) and the fine *O. triumphans* *Imperator* and *Theodora*.

AWARDS.

FIRST-CLASS CERTIFICATES.

Brasso-Catt.-Lalia x Veitchii (*L. purpurata* x *B.-C. Digbyano-Mossiae*), from Messrs. JAS. VEITCH & SONS. A grand hybrid comparable to very fine *Laelio-Cattleya callistoglossa*, but with the richly-coloured labellum fringed. Sepals and petals silver-white, tinged with rosy-lilac. Lip large, the disc light chrome-yellow, and base with purple lines; the broad front is rose purple, merging lighter towards the fringed margin.

Sophro-Lalia Phroso superba (*L. Jongheana* x *S.-L. lata orpetiana*), from Major G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. Alexander). A charming flower of a uniform mauve-crimson colour, with orange disc to the lip.

Odontoglossum ardentissimum "Herbert Goodson," from H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. Day). The finest form of *O. ardentissimum*, with a very heavily-blotched flower, equal to a good blotched *O. crispum*. All the segments are broad and nearly covered with claret-crimson blotches, the margin and dividing lines being silvery-white.

AWARD OF MERIT.

Odontoglossum Othello (*Harryanum* x *Adriana*), from C. J. LUCAS, Esq. (gr. Mr. Duncan). A hybrid with the dark colouring of a good *O. Harryanum*, but of better form. Sepals and petals yellowish-white, heavily blotched with chocolate colour; lip white, with purple markings at the base.

CULTURAL COMMENDATION.

To Mr. H. G. Alexander, Orchid grower to Major HOLFORD, for a noble specimen of *Cattleya Mendelii*, Westonbirt variety, with 16 flowers. It is a grand flower, with front of the lip shaded an intense purple; and for a specimen of *Odontoglossum Adrianae* Lady Wantage, grown from a single pseudo-bulb, and bearing six spikes, having together 105 flowers, one spike bearing 26 fine blooms.

To Mr. W. H. White, Orchid grower to Sir TREVOR LAWRENCE, Bart., Burford, for two splendid inflorescences of *Phalaenopsis amabilis* (grandiflora), one having three branches bearing 13, 14, and 18 flowers respectively. The single spike had 21 flowers, and all were of extraordinary size.

THE DEVON DAFFODIL.

APRIL 9.—This society opened its fourth annual show in the Guildhall, Plymouth, on the above date. The exhibition was in every sense a success, the entries exceeding those of the preceding year by nearly a hundred. Twelve

exhibitors competed in the premier Devon Narcissus class, while in two other classes there were 19 entries. The open classes were also well filled, the same Cornish growers who were successful at Truro carrying off the majority of the prizes. Spring flowers other than Narcissi were well shown, and many of the pot plants were exceptionally fine, Cyclamen and Zonal Pelargoniums especially being marvels of culture. We mention a few of the more prominent exhibits:—

Collection of 30 varieties of Daffodils.—1st prize, Mr. P. D. WILLIAMS, with a stand as good as that which occupied the premier position at Truro, Peregrine, Lucy, Etoile, Incognita, Famille Verte, Beacon, Bullfinch, Waxwing, Diana, Chaffinch, Pure Gold, Horace, Will Scarlet, Maximus, Inga, and Lord Roberts being very fine.

A group of Daffodil seedlings exhibited not for competition by Mr. J. C. WILLIAMS was certainly the most interesting feature of the show. The 15 varieties staged included Magni-coronati, white and yellow; two beautiful white Medio-coronati, one of which was said by the judge to be the finest flower in the show; and Parvi-coronati, with spreading orange-scarlet cups. For this stand an Award of Merit was given.

Best group of Rhododendron blooms.—1st prize, Mr. D. H. SHILSON, with 225 trusses of 75 different varieties, this exhibit creating a brilliant effect. A Certificate of Merit was awarded to the varieties Duke of Cornwall and Duchess of Cornwall.

Finest truss of Rhododendron.—1st prize, Mr. D. H. SHILSON, with R. Harrisii.

Group of hard-wooded flowering shrubs.—1st prize, the Earl of MOUNT EDGUMBE, with a collection including Correa cardinalis, Wistaria sinensis, Magnolia conspicua, Daphne Mezereum, Cerasus J. H. Veitch, Forsythia intermedia, Spiraea Thunbergii, Correa bicolor, Prunus triloba fl. pl., Acacia decurrens, Pyrus japonica, Jasminum primulinum.

Collection of 20 varieties of hard-wooded flowering shrubs.—Silver cup, Mr. T. B. BOLITHO, whose group contained Chorizema Lowi, Pittosporum undulatum, Photinia serrulata and several Magnolias.

Among the pot plants the 1st prizes in the classes for six Cyclamen and six Zonal Pelargoniums, won respectively by the Misses CAREW and Mrs. BAINBRIDGE, were each accompanied by Awards of Merit. Similar awards were also given to Mr. H. W. GRIGG for a collection of flowering shrubs and herbaceous plants; to Mr. T. MARTIN for Rhododendrons grown on Dartmoor and for Cyclamen; and to Col. HEXT for 20 very fine bunches of double Violets.

THE DEVON ROSARY, Torquay (Award of Merit and Silver Medal) staged a fine collection of pot Roses in good bloom. Messrs. R. VERTCH & SON, Exeter (Award of Merit and Silver Medal), showed a miscellaneous collection of plants, among which were noticeable some very fine Amaryllids, winter-flowering Carnations, Clivia miniata, Camellia reticulata, Saxifraga Rhei superba, S. Guildford Seedling, S. coriophylla, S. Griesbachii, Arabis alpina fol. var. Sanguinaria canadensis, Cytisus Beanii, Androsace carnea, A. sempervirens, A. Hendersoni, and Vitis Henryana. Messrs. CUTBUSH & SON (Award of Merit and Silver Medal) showed Erica coccinea minor, Rhododendron Smithi aureum, Iris susiana, I. Haynei, I. pumila, Azalea rosæiflora, Primula acaulis cærulea, P. cashemiriana, P. rosea, Boronia heterophylla, Draba aizoon, Daphne Blagayana, and many other plants. Messrs. BARR & SONS (Award of Merit and Silver Medal) provided their usual effective display of the best Daffodils, including Peter Barr.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 4.—Committee present: E. Ashworth, Esq. (Chairman); and Messrs. R. Ashworth, Stevens, Cowan, Ashton, Williamson, Duckworth, Parker, Sander, H. H. Smith, Keeling, Leemann, Walmsley, P. Smith, Weathers (hon. sec.).

This meeting proved to be one of the very best meetings since the formation of the society, and the great feature was a unique display staged by Messrs. ARMSTRONG & BROWN, of Tunbridge Wells, whose exhibit consisted of about one hundred and fifty plants of Dendrobium nobile var. virginale, which had been

raised from seed. It was interesting to note the great variety which obtained in this batch of seedlings; of course, all were "albino," but there were great differences in form. The award of a Silver-Gilt Medal was richly deserved.

A. WARBURTON, Esq., Haslingden, again displayed a well-grown collection of plants, to which a Silver Medal was voted.

W. THOMPSON, Esq., Stone, Staffs., gained a similar award for a group, noticeable in which were some extra well-grown plants of Oncidium concolor.

Messrs. J. W. MOORE, LTD., Rawdon, near Leeds, were awarded a Bronze Medal for a miscellaneous group, and Messrs. KEELING & SONS also staged a group for which a Bronze Medal was awarded.

The following awards were made:—FIRST-CLASS CERTIFICATES to Odontoglossum crispum var. Roi d'Angleterre, shown by M. LUCIEN LINDEN; O. crispum-Harryanum x O. x ardentissimum, exhibited by A. WARBURTON, Esq.; O. Bleuanum var. Stevensii, displayed by W. THOMPSON, Esq.; Lycaste x Tunstallii (confirmed), from the gardens of E. ROGERSON, Esq. AWARDS OF MERIT to Odontoglossum Rossi var. magnificum, shown by Messrs. A. J. KEELING & SONS; Dendrobium nobile var. virginale magnificum and Odontoglossum x orphanum, both exhibited by Messrs. ARMSTRONG & BROWN; O. Cervantesii var. decorum, Thompson's variety, O. exultans var. Minerva, both shown by W. THOMPSON, Esq.; O. Sylvia (O. x Rolfæ x O. cirrhosum), O. amabile var. Grairianum, O. Ossulstoni var. purpurescens, the last three from Messrs. CHARLESWORTH'S nursery. A CULTURAL CERTIFICATE was awarded to a plant of Odontoglossum triumphans var. latiseptalum Mrs. Ardern. It was magnificently grown and reflected credit upon the grower, Mr. W. NORRIS. P. W.

Obituary.

J. HILL WHITE.—We regret to record the death from bronchitis of this prominent nurseryman. Deceased was one of the best known nurserymen and seedsmen in Worcestershire, and his services as judge were in frequent requisition at flower shows. As an exhibitor he won many prizes, including the Wolverhampton Challenge Trophy. The late Mr. White was hon. secretary of the old Worcester City and County Horticultural Society for 14 or 15 years. It was principally due to deceased that the Worcester branch of the Gardeners' Royal Benevolent Society was formed, and for several years he acted as branch secretary and treasurer; the subscriptions and monies raised from the throwing open of the grounds of Earl Beauchamp, Mr. C. W. Dyson Perrins, and other gentlemen to the public have resulted in over £1,000 being added to the funds of the society. The funeral took place on Tuesday, the 9th inst., at Astwood Cemetery. The late Mr. White leaves a widow and two sons, Messrs. Harry and Percy G. White, who have assisted him in the business for several years past.

ENQUIRIES AND REPLIES.

WYCH ELM FOR WATER.—I have had some Wych Elm split up, and intend using it to repair banks of rivers. Is this a good wood to last under water? L. L.

ANSWERS TO CORRESPONDENTS.

BLACK CURRANT SHOOT: H. C., Bath. —You send no communication with the Currant twig, but if you wish us to say if "big bud" is present or not, we are sorry to inform you it is. For details of the treatment of this pest with lime and sulphur, see p. 221.

CATALOGUES: C. R. We cannot supply copies of the catalogues you mention. Apply to the firms themselves.

CHERRY BRANCH: H. D. W., Edin. The fungus on Cherry branches is Polyporus chioneus. It is not likely that it will attack living trees, as it is not truly a parasite.

GRASS: W. J. M.—One of the best lawn grasses for cultivation in shade is Poa nemoralis.

HOW TO OBTAIN A PATENT: F. B. You must make application to the Board of Trade, Whitehall Gardens, London, S.W. The applicant must file a specification, either complete or provisional, and in either case drawings of the invention may be required. The fee for a provisional protection is £1.

LIMA BEANS: C. W. These are the most appreciated Beans in the United States, but they will not ripen in this country or even in Paris in ordinary seasons. They require a hotter summer climate.

MUSCAT VINE: W. H. We cannot have any knowledge of the cause of the rod failing to grow, unless we were familiar with the cultural conditions, or, at least, had specimens for examination.

NAMES OF PLANTS: G. F. M. Nuttallia cerasifolia.—E. W., Stansted. Forsythia suspensa. The weed is Achillea Millefolium, the common Yarrow or Milfoil, one of the commonest of British plants. Dress the lawn with some nitrogenous manure, such as nitrate of soda mixed with sulphate of potash.—W. B. Oncidium concolor.—C. B. Dendrobium chrysotoxum.—R. O. Y. 1, Stelis musciferia; 2, Masdevallia nidifica; 3, Cochlioda sanguinea.—J. S. D. Bifrenaria tryan-thina, an ally of B. Harrisoniae, which has cream-white petals and is more commonly seen in gardens.—A. M. G. The Norway maple Acer pseudoplatanus.—J. C., Hampton Wick. 1, Cupressus Lawsoniana; 2, probably the Corsican pine Pinus laricio; 3, probably Pinus excelsa; 4, Thuja occidentalis; 5, Retinospora plumosa of gardens; 6, probably Cedrus atlantica.—W. H. S. Cupressus funebris in the juvenile or Retinospora stage; the Orchid is Cattleya Bowringiana.—Bassel. Rhododendron Falconeri.—W. 1, Corydalis tuberosa; 2, Saxifraga crassifolia.—G. H. B. 1, Lonicera tatarica; 2, Sanguinaria canadensis; 3, Anemone blanda; 4, Orobanchus vernus var.; 5, Orobanchus vernus var.; 6, Corydalis tuberosa.—Walton. The Rhododendron is one of the hybrids obtained from R. Edgeworthii, and should be cultivated in a greenhouse. We cannot name the varieties of Pelargonium (Geranium).

ODONTOGLOSSUM CRISPUM: A. G. The flower you send has seven perianth-segments, two lips, two columns and two ovaries. There has thus evidently been a fusion of two flowers and some of the segments (of which there should be five in each flower) have been squeezed out in the course of the fusion. Botanists would consider such a flower as an instance of "synanthly." It is not very uncommon.

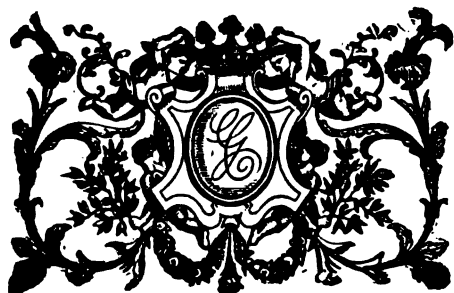
PEACH FRUITS DOUBLE: Anxious. The formation of two ovaries is a reversion to the ancestral type when five was the normal number. It is not often, however, that the plant "throws back" to the condition of five, but we have often seen cases of two as in yours.

POTATOS: J. McC. The winter-rot, caused by Nectria solani, is the cause of the hollow-ness. This disease always commences in the centre of the Potato, and only reaches the surface when the tubers are not well dried before storing, when sweating occurs.—C. F. C. We cannot determine whether the variety is Up-to-Date. The tubers do not appear to have disease other than ordinary "scab."

ROSA WICHURAIANA: J. C. Rosa Wichuraiana is a "manuscript" name only, that is to say, no botanical description has been given of the plant. Wichura was a German botanist who accompanied a Prussian expedition to China, Japan, &c., in 1859-61. He died of suffocation in Berlin in 1866. See *Kew Bulletin* (1859), p. 300. Bretschneider, *Botanical Discoveries in China* (1898), p. 41. In the *Index Kewensis* R. Wichuraiana is referred to as R. Luciae. Pronounce the word as best you can in English; the foreign pronunciation would be something quite different.

YEW HEDGE: Jas. C. The hedge having been recently planted, it will be as well to defer pruning until June. The stronger growths may be again shortened in September. Somewhat frequent pruning is necessary in order to obtain a satisfactory base in the hedge.

COMMUNICATIONS RECEIVED.—A. C. B. (with thanks)—M. R. Chollet, Cheffes, Maine-et-Loire—F. J. C.—G. W. S.—Alwin Berger, La Mortola—Dr. Heimerl, Vienna—Dr. Fedde, Berlin—A. H. Blechley—A. E. S.—Miss Barclay—A. W. G. (Is has been placed in the R.G.O.F. box)—M. H. Smith—J. Garner—Jno. Watson—Royal Meteorological Society—W. Watson—A. K.—H. J. G.—G. H. H.—S. C.—Anxious—W. K.—A. K.—C. R.—H. R. W.—F. M.—C. T. D.—S. W. F.—W. J.—Y. Z.—D. T.—C. S.—E. J. W.



THE Gardeners' Chronicle

No. 1,061.—SATURDAY, April 27, 1907.

CONTENTS.

Alpine garden—	Propagator, the...	264
The green Snowdrop	Public park employees' examination	269
Books, notices of—	Pyrus Sorbus	272
Beautiful gardens	Rosary, the—	
British Central Africa, a note from	Some new English raised Roses	266
Cydonia japonica rosea	Rosa Wichuraiana	271
Daffodils, the pollination of	Seed and nursery trade employees	271
Evesham, fruit-growing at	Seed testing	268
Flower beds, the effective arrangement of	Societies—	
Gooseberry-mildew, American	British Gardeners' Association	270
Hippeastrum hybrid	Hunts Daffodil	274
Johannesburg, transplanting trees at	Linnean	269, 274
Lead arsenate as a spray	Midland Daffodil	272
Nursery notes—	Royal Botanic	274
K. Drost, Richmond	Royal Horticultural (Scientific Committee)	268
Obituary—	Strawberries, deterioration in	268
Hendrik van Waveren	Trees and shrubs—	
Prof. Kjellman	Lonicera Maackii	264
Alois Kropatch	Week's work, the—	
E. Mertens	Flower garden, the	266
Orchid sale	Fruits under glass	266
Pelargonium sport	Hardy fruit garden	267
Photinia serrulata	Kitchen garden, the	267
Plants for a dry bank	Orchid houses, the	266
Plants, new or noteworthy—	Parks and gardens	267
Rhododendron intricatum	Plants under glass	267
	Winter, effect of, in the south-west	270
	Young, W. H.	270

ILLUSTRATIONS.

Begonia Gloire de Seaux	267
Evesham, Daffodils beneath fruit trees at	270
Hippeastrum Queen of Spots (Supplementary Illustration)	
Lonicera Maackii	265
Rhododendron intricatum	263

THE EFFECTIVE ARRANGEMENT OF BEDDING PLANTS.*

THE arrangement of colour, in designs of any kind, is to some extent a matter of taste, but there are certain elementary rules generally accepted on the subject of colour arrangement, and these apply equally to the flower garden and to pictures on canvas. Mr. Robinson, in his *English Flower Garden*, observes that the rule to follow in a bedded garden is to keep the scheme of colouring as simple as possible, which means, I take it, the avoidance of too great and varied a mixture.

Even in the simplest combinations, however, mistakes are often made, probably the most common being a lack of proportion amongst the colours. How often does one see in summer bedding, various shades of red in flower and foliage, e.g., red Pelargoniums, red Coleus, Iresines, &c., predominating and "killing" every other colour in the garden.

It is often asserted that grey or whitish-green may predominate in summer bedding, but even this, when seen in masses of white

variegated Pelargoniums, may become monotonous if used too freely.

Speaking generally, however, the softer and lighter hues should prevail over the bright colours. The latter should also be placed as far away as possible from the principal point of view. If, for example, a path runs around the garden, it is well to have the bright reds, blues, &c., in the central beds, whereas if the walk is in front of the beds, strong colours should be placed at the back, and be so arranged that they graduate into the pinks and other delicate tints in the front beds.

High colours naturally "show up" better, when seen from a distance, than those of softer hue, and if the beds are placed some distance from the house, they should always wear a brighter aspect than those immediately in front of the windows.

To what extent contrast of colour may be allowed in neighbouring beds must always be decided by their distance apart, and by the circumstance whether the intervening space is of grass or gravel. If they are separated by wide stretches of grass, more freedom may be allowed in the choice of colour for each bed than would be the case otherwise, as the bright green of the lawn will tend to tone down contrasts which would be too glaring if the beds were close together or separated by a gravel walk only. A healthy box edging, even, will greatly assist in this direction.

Mr. Cole, in his book, *The Parks and Gardens of London*, says: "The grand principle in the employment of colour is never to place a compound colour between the primitive colours which compose it." Thus, purple ought never to be employed between blue and red, nor orange between yellow and red. On the contrary, purple may often with advantage be placed between yellow and red, or between blue and yellow, or compounds of these colours. On the same principle blue flowers may be placed near orange, as being complementary to the red and yellow composing the orange. These remarks apply to the arrangement of flowers in mixed beds, as well as to their disposition in a parterre. In the latter case each bed forms, or should form, part of the same scheme of colouring, and it is therefore best to confine each quarter to plants of similar hues, only introducing those of other colours to lower or heighten the effects of the main colour, and to aid in making it harmonise with the surrounding beds.

ISOLATED BEDS.

In isolated beds, however, or in beds so widely separated that all cannot be seen in one view, the effect of this is usually very monotonous. In this case, therefore, one should aim at making each bed perfect in itself, by so graduating and mixing the various colours that one should be puzzled to know which tint prevails in the entire arrangement. This requires more skill on the part of the gardener than the arrangement of a parterre of flowers, as the fact of the colours being close together makes any disagreeable contrast the more conspicuous. There should, therefore, be no violent transition from one colour to another, contrasts being as far as possible avoided, in favour of the intermingling and harmonising of many different tints. This applies, as I said before, chiefly to solitary beds in prominent positions,

where they are constantly under observation. For example, a bed of one colour immediately in front of the windows of a residence becomes monotonous before the summer is half over, but a well-arranged, mixed bed shows so great a variety that the eye discovers something new each time it is seen. In more secluded spots, however, and in places where the bed comes suddenly into view, and as suddenly disappears, a mass of one colour is often more effective.

In spring-bedding the duration of the flowers is short, and simpler combinations than in summer bedding may therefore be allowed, as the effects pass away before they have time to become monotonous. Nothing in the way of bedding was more beautiful at Kew last spring than the bed of Spanish Iris intermingled with *Gypsophila elegans*, on the Range Terrace, although had it lasted for three or four months one might have become tired of it.

So far, I have spoken only of bedding arrangements in regard to colour, and in the style of decoration peculiar to formal or geometrical gardens, that is, of course, the chief consideration.

THE NEUTRAL STYLE OF BEDDING.

Of late years, however, a much freer style of arrangement has been introduced, in which the form and habit of the plant are of equal importance with its colour. Each system has its own peculiar beauty, and, therefore, each should find a place in the garden.

It is generally conceded that the latest development, which I will call the "neutral style," is vastly more effective than the older in certain situations, as, for example, beds on each side of a broad walk. It is, however, equally certain that it will never take the place of the more uniform style in parterres, such as that practised in front of the Palm house at Kew. The chief fault of the older style, as of the parterre generally, is not its regularity so much as its gaudiness.

The increased use of standard plants of *Heliotropes*, *Lantanas*, *Fuchsias*, &c., which relieve, but do not hide, the level surface of the old-fashioned bedding, is reviving some of its old popularity. Of the neutral style there are many gradations from beds filled, more or less thickly, with single plants, or groups of plants of low growth, and of various habits and colours. Such an arrangement differs only from the old-style mixed bed in its less compact appearance. It is most suitable for small beds in restricted areas, and when well carried out is very effective. It also affords opportunities for displaying many plants which may not be required elsewhere.

LARGE BEDS.

In large beds a few of the occupants should be correspondingly tall, for however well a bed may appear when planted, say, with *Begonias*, or with such a combination as *Begonias*, *Sweet Alyssum*, and *Lobelias*, there can be no doubt that the addition of a few taller plants, such, for example, as *Grevillea robusta*, is always an improvement. The extra height of the latter plant not only diminishes the apparent extent of the bed, but, in several respects, adds variety to the combination. In this style of bedding one should always remember that one of the most important objects is to produce contrasts of

*A paper read before the members of the Kew Gardeners' Mutual Improvement Society by Mr. A. W. Proudlock.

form. Thus, in the case just mentioned, the introduction of the *Grevillea* creates a pleasing difference between its own foliage and that of the *Begonias*, and, if necessary to create a still more varied effect, this could be attained by alternating the *Grevilleas* with other tall subjects, such as *Fuchsias* or *Acacia lophantha*. The habit of either of these accords well with that of the *Grevillea*, but the plants should be placed sufficiently far apart to allow the form of each to be easily seen and compared with that of its neighbour, for if they be placed too close together, not only is this contrast of form lost, but the lower plants are to a greater extent hidden. The mixing indiscriminately and in heavy masses of tall flowering and foliage plants, and leaving out altogether those of shorter growth, is sometimes practised. In certain situations this plan is to be recommended, such, for example, as in a bed placed near the entrance to a woodland walk, where it is necessary to create a gradual transition from the natural scenery without, to the more formal appearance of the garden within.

In the flower garden itself, however, elegance rather than picturesqueness should be aimed at. It is scarcely necessary to remark that, to produce good results in the "neutral" style, the beds should be placed at a considerable distance apart. Where they are comparatively close together, as at Hampton Court, care should be taken to make each bed distinct in general appearance from its neighbours, whilst at the same time paying due attention to harmony of colour. A. W. Proudlock.

(To be concluded.)

NEW OR NOTEWORTHY PLANTS.

RHODODENDRON INTRICATUM, Franchet.

At the meeting of the Royal Horticultural Society on April 2 Messrs. James Veitch & Sons exhibited a charming little *Rhododendron* under the name of *R. nigro-punctatum* (an account of which is given at p. 225), for which they were awarded a First-Class Certificate. Subsequently Messrs. Veitch presented a plant to Kew, and it was critically examined, with the result that it proved to have been incorrectly named.

In this connection I may mention that previous to his departure for China, a few months ago, Mr. Wilson and I were engaged on a joint examination of the very fine dried collection of *Rhododendrons* made by him on his first and second journeys in China, and presented to Kew by Messrs. Veitch. To facilitate the identification of the numerous species described by the late M. Franchet, Prof. H. Lecomte loaned the whole of the types belonging to the Paris Herbarium to Kew, and we were thereby able to correct some of our earlier determinations. But we were unable to complete our revision and publish the new species, numbering about 25, before Mr. Wilson had to start, and I have not since had time to finish my part of the work, otherwise the species under consideration would, perhaps, not have come before the public under a wrong name.

R. intricatum belongs to the section *Osmothamnus* (genus *Osmothamnus*, DC.), originally founded for *R. fragrans*, Maximowicz, since reduced to *R. Anthopogon*, Don, figured in the *Botanical Magazine*, t. 3947. Maximowicz (Mem. Acad. Imp. Sc., St. Petersburg, 7me. serie, Vol. XVI., 1870, pp. 15-18), added *R. parvifolium*, Adams, and *R. micranthum*, Turczaninow, to *Osmothamnus*, as a section of *Rhododendron*. More recent investigations in

Western China have led to the discovery of upwards of half-a-dozen new species of the same section, all having foliage very similar to that of *R. intricatum*, Franchet (*Journal de Botanique*, vol. IX., p. 395); indeed, so very similar that it is difficult to distinguish them in the dried state. One set has solitary flowers and another clustered flowers; and one set has included stamens and another has exserted stamens.

The flowers of *R. intricatum* are almost invariably in clusters of five; the stamens are included, and much shorter than the corolla; the style is shorter than the stamens, and the

long and densely clothed with small peltate scales on both surfaces. These scales sometimes dry black; hence the name, *nigro-punctatum*, given to one of them.

R. intricatum is quite hardy and flowers profusely when only a few inches high. In a wild state Mr. Wilson found it from 1 to 3 feet high. The flowers are lilac or almost violet in colour, and the yellow anthers just protruding from the tube of the corolla give them the appearance of Violets. When carefully dried they are exactly violet. A coloured figure has been prepared for the "Botanical Magazine." W. Botting Hemsley.



FIG. III.—RHODODENDRON INTRICATUM: FLOWERS PALE LILAC (REAL SIZE), POLLEN-GRAINS MAGN. 240 DIAM.

filaments and inside of the corolla-tube are only very slightly bearded. In *R. nigro-punctatum* the flowers are solitary, terminating the branchlets; the stamens are exserted; the style is as long as the stamens, and the filaments and inside of the corolla-tube are conspicuously bearded. From *R. thymifolium*, Maximowicz, which also has included stamens and a style shorter than the stamens, *R. intricatum* differs in the flowers being clustered, not solitary. *R. blepharocalyx*, *R. fastigiatum*, *R. polycladum*, and *R. polifolium* are other new species, described by Franchet, which are closely allied to *R. intricatum*. All of them are dwarf, densely-branched shrubs having small, oblong, crowded, persistent leaves, mostly under half-an-inch

SUMMER IN BRITISH CENTRAL AFRICA.

(Concluded from page 230.)

A VAST panorama is spread out before one's eyes: apparently one large, white, billowy ocean, dotted with a hundred and one major and minor conical islands; in reality clouds, which are still lying low over the plains, overtopped here and there by the scattered hills. Far in the distance Zomba Mountain is conspicuous, and even more so is the brackish Lake Shirwa, with the hilly Portuguese territory beyond. Turning to the mountain, one is confronted by a series of beautifully-shaped rolling downs, covered with a short grass, with little streams, little lakes, little forests, and little mountains, which, rising

for another 1,000 to 4,000 feet, tower aloft into the clouds. You imagine that the country stretches before you for miles, when, stepping a short distance in another direction, you stop shuddering on the edge of an awful gulf, which, on a misty day, might be taken for the end and edge of the world.

Gradually ascending the grassy downs, they are found to be divided by deep valleys, in which practically all forest growth is confined, the grass land being only broken by shrubby *Proteas* (*P. Nyassæ*), now bearing their large, creamy-white flowers. The top of the downs is reached at about 6,000 feet elevation, and above this lie the numerous ridges and peaks of huge granitic boulders. The vegetation is more pronouncedly that of the Temperate zone. There are large patches of the delightful pink *Erica Johnstonii*, with dense, nodding, globose heads of flowers, which, together with the leaves, have a very woolly appearance, owing to the close aggregation of the tips of the white hairs with which they are fringed; *E. Whyteana*, a smaller plant, with a virgate habit, smooth leaves, and long racemes of delicate pink flowers; *E. arborea*, and the allied *Phillipias*, with numerous minute red flowers. *Vaccinium africanum* is common, and quite a conspicuous figure in the landscape, with its glabrous, ovate, serrated leaves, and numerous axillary racemes of nodding flowers, large, campanulate, white or occasionally red tinged, followed by brightly-coloured, fleshy fruits, the only *Vaccinium* known from tropical Africa.

Hebenstretias, *Selagos*, and *Thesiums* are everywhere. By the lesser streams *Hypericum lanceolatum*, a tree of 20 to 30 feet, is smothered with bright yellow flowers, nearly 2 inches in diameter. Equally showy is *Polygala virgata*, and its forms, growing from 4 to 6 feet high, and bearing graceful pendent racemes of bright purple, rose, and white flowers. *Rubus huillensis* is a very welcome plant, being well furnished with hundreds of luscious, orange-yellow, black-berry-flavoured fruits.

The lower rocky slopes, just above the downs, are spangled with showy *Dissotis*: gay, large-flowered, erect, trailing, and climbing species of *Senecio*; several dwarf, rich blue *Lobelias* and *Wahlenbergias*; thousands of minute *Utricularias*, about 1 inch high, with purplish-blue flowers; *Aloes* and *Crassulas*. Here and there lies a charming bog of sphagnum, accompanied with such appropriate plants as *Drosera ramentacea*, *Lycopodium cernuum*, *Hydrocotyle moschata*, *Tillæa pentandra*, and *T. aquatica*, *Anagallis* *Quartiniana*, *Cyanotis lanata*, *Ludwigia jussieoides*, *Thalictrum rynchocarpum*, *Anemone Whyteana*, graceful *Carices*, &c. Crowning every rock, in any spot almost devoid of soil, grows the Queen of the Mountains, *Vellozia splendens*, with repeatedly forked stems, chiefly composed of a mass of brown, imbricating scales, crowned with a number of rosulate rigid leaves, from which spring magnificent clusters of large, white, deliciously-scented flowers, now and then tinged with pink. Individual flowers at a casual glance remind one of *Lilium candidum*. Sir Harry Johnston playfully remarks that even the botanists of Kew were momentarily conscious of the plant's beauty, and ere the sensation passed away they named it "splendens." The flowers are produced for many months in succession.

Following the banks of a small stream, along which *Cyathea Dregei* is very common, a glorious shrub in full bloom instantly claims attention. It is *Mussaenda arcuata*, a Rubiaceous subject, with clusters of dainty Primrose-shaped flowers, deep yellow, with a five-rayed star of orange hairs radiating from the tube, with rich, glossy green leaves, and exhaling a delicate perfume. A mental note is made that seeds are to be secured for plant enthusiasts at home. *Podocarpus milanjanus*, with long Yew-like leaves, is very common along the stream-side,

but does not often develop into a useful timber tree as it does in East Africa and Uganda.

Underneath a large *Cyathea* one discovers a fairy scene that only a Shelley at his best could adequately describe. A flat boulder is covered with a dense carpet of a rich green moss (*Funaria hygrometrica*), the almost pellucid leaves spangled with thousands of tiny crystal drops of moisture. Dotted here and there is an Orchid (*Holothrix Johnstonii*) with two roundish ovate leaves closely pressed on to the moss, each plant with a second spike from 5 to 12 inches high, one-third of which bears numerous flowers more delicately pink than "pearls of Eastern fame," and emitting a delicious perfume—dainty pearls set in a bed of countless emerald stars. So exquisite a scene will remain to cheer the mind when now notorious events and personalities are passed into oblivion.

Roaming at ease over the rolling downs, the air is cool and bracing, the sunshine harmless, and one can with impunity discard the helmet so necessary in the plains; but when the sun sets amid indescribable splendours of fiery reds, orange, yellow, pink, purple, black and blue, in what appears to be the middle of the sky—so high is the horizon—when the clouds descend, the lightnings flash, and terrific peals of thunder are echoed and re-echoed from crag to crag, from peak to peak, Nature begins to wear an alarming aspect, and one quickly retires to the cheery comfort and company of a fire of blazing "Cedar logs."

The bracken (*Pteris aquilina*) is common on these downs, greeting one at every turn like a messenger from the homeland. The short grass is studded with *Moræa zambesiaca*, bearing bright purple flowers, equal in size to a fine variety of *Iris xiphoides*; thousands of the intensely blue *Disa hamopetala*, a really blue Orchid, which, for graceful form and charming colour, has no peer among the *Disas* as yet discovered; *Eulophia Shupangæ*, *Lissochilus milanjanus*, *Gladiolus atropurpureus*, *Mellerii*, *Oatesii*, *oligophlebius*, *Crocossia aurea*, *Dierama pendula*, *Eucomis zambesiaca*, *Viola abyssinica* and *Ranunculus pinnatus*, all add to a charming display. These will shortly be followed by acres of confusing species of golden and silver *Helichrysums*, tuberous *Crassulas*, other *Gladioli*, *Disas* and *Satyrums*, flaming spikes of *Kniphofias*, snowy-white *Anthericums*, and *Chlorophytums*, *Asters* and *Gerberas*, *Coreopsis*, *Inulas* and *Vernonias*, tall *Leonurus velutina*, with huge whorls of velvety orange flowers, bushes of *Lantana salvifolia*, &c. Clumps of the large golden-yellow, Lupin-like *Argyrolobium shirens* already indicate what a glorious show it can put forth, likewise the very abundant herbaceous *Clematis Kirkii*, a species with erect stems 1 to 3 feet high, bearing from five to 30 snowy-white flowers, each over 2 inches in diameter—two promising plants for greenhouse culture, or even for the open air in the favoured gardens of Cornwall and Ireland, as during the months of July and August these downs are on most mornings covered with a white rime of frost.

THE MLANJE CEDAR.

We turn to the deep, dark, peaceful forests that fill each ravine. Dominating all other trees is the so-called Mlanje Cedar or *Widdringtonia Whyteii*, only known to occur on this isolated mountain. Closely allied to *Callitris*, the older specimens suggest in appearance a combination of the Scotch Pine and the Cedar of Lebanon. The young trees are furnished with Juniper-like leaves, from $\frac{1}{4}$ inch to 1 inch long, green above and glaucous beneath; they are, however, soon succeeded by short, closely-imbricating, scale-like leaves. Grown as an ornamental tree at lower elevations, the Juniper-like foliage is retained much longer; the tree does not, however, remain in a flourishing condition for many years at less than 4,000 feet elevation. As the trees soar above their neighbours, their branches lie horizontally, and point strongly along the

line of the prevailing winds, thus giving them a very flat-topped, one-sided appearance. Most of the branches are profusely decorated with the grey, pendulous Lichen, *Usnea barbata longissima*, which frequently attains a length of 18 inches, and imparts a distinctly Arctic tone to the forests. Trees measuring 3 feet in diameter and 6 feet to the first branch are common, some of the veterans being over 150 feet high and 6 feet in diameter. The bark is extremely thick, the timber faintly red in colour, clean, strong, easily worked, takes a good polish, but has no "pretty" grain, is durable in both wet and dry works, and is especially immune from the ravages of white ants. This last good quality is due to its containing a high percentage of essential oils. In past years hundreds, nay thousands, of fine trees have been destroyed by the bush fires which annually creep up the mountain side; once reaching the oily trees destruction is rapid. This is now prevented by hoeing a broad path around each belt of forest once a year.

Naturally a varied flora is found in these damp, densely-shaded forests. At least a dozen species of *Asplenium* are there, large *Nephrodiums* of great beauty, *Hymenophyllum australe* on tree trunks and damp rocks; also *Gloichenia polypodioides*, *Cheilanthes multifida*, *Pteris quadriaurita*, *Lomaria Boryana*, *Selaginella versicolor*, and *Lycopodium verticillatum*. *Impatiens shirens*, and others of the Sultani type, are very common. Epiphytic Orchids are all distinctly "botanical species," there being several *Polystachyas*, *Bulbophyllums*, *Angræcums*, *Listrostachys*, and a single *Megacelinium* (*M. Mellerii*). Towards the edge of the forest *Clematis simensis* climbs from tree to tree, with a wealth of bloom that compares well with *Clematis montana* at home. The fragrant *Jasmine* is represented by *J. stenolobium*. There are also many showy species of *Hibiscus*, *Sida*, *Dombeya*, clumps of *Acalypha villicaulis*, *Clerodendron myricoides*, and many other interesting plants.

The peaceful nature of these forests, the odorous resin, the carpets of emerald-green moss, make one long, when the dews have dispersed, to lie down amid the cooing of the doves and the murmuring cascades and cataracts of the streams, "the world forgetting, by the world forgot."

Spending a few days amid such scenes, living in the foresters' comfortable "log cabin," one returns to Zomba, physically and mentally invigorated, feeling convinced that wherever situated, and whatever difficulties Nature places in one's way, she also provides ample compensation for all who endeavour to investigate and understand her ever-varying, never-ending works. *E. W. Davy, Agricultural, Forestry, and Botanical Department, Zomba, British Central Africa.*

JOHANNESBURG: SUCCESSFUL TRANS-PLANTING OF LARGE TREES IN THE PUBLIC PARKS.

In July last it became necessary, owing to alterations, to remove several large trees in Joubert Park, and as some of these were good specimens, it seemed desirable that an attempt should be made to preserve them. The attempt has been crowned with complete success, as the accompanying photos. (not reproduced) clearly show.

The result has utterly confounded the sceptical critics, who prophesied disaster.

The following is a list of the principal trees:—

Name.	Girth.	App. Height.
	87 in.	80 feet
<i>Fagus Castanea</i> (Chestnut Spanish)	28 "	28 "
	26 "	24 "
	21 "	19 "
<i>Betula alba</i>	13 "	34 "
" (3)	8 "	18 "
<i>Quercus Robur</i> (var. <i>pedunculata</i>)	12 " to	17 " to
(10)	24 "	30 "
<i>Cedrus Deodara</i>	—	19 "

As the alterations were unforeseen, none of the trees, with the exception of the *Deodar*, underwent any preliminary preparation in the way of spring trenching.

The removals were from 20 to 50 yards, and were performed as follows, generally with a running accompaniment of derisive remarks from the aforesaid critics and other bystanders.

The trees were trenched round at a distance of about 2 feet 6 inches and from 3 to 4 feet depth they were under-cut.

All large roots were carefully severed, and the smaller fibrous roots retained. An inclined plane was dug out to the bottom of the trench, and a sledge placed in position, on to which the tree, with its full ball of roots and earth, was gradually shifted by block and tackle. The largest of the Chestnuts must have weighed nearly three tons. The same process reversed was used in planting. After treatment consisted of thinning out and shortening in the heads of the deciduous trees to balance loss of roots, a thorough soaking immediately after planting, and continued at frequent intervals, and repeated sprayings of the bark.

All the trees are living, and are carrying nearly a normal crop of leaves (the Oaks are fruiting); even the Birches and Deodar, usually difficult subjects for transplanting, show scarcely any signs of their removal.

From the foregoing remarks it is evident that, contrary to the general opinion, trees of large size can be successfully transplanted in this Colony during their resting period, provided that sufficient care be exercised in the shifting and continuous attention be given to the watering and spraying, and to this latter I largely attribute our success. *A. H. Stirrat, Superintendent of Parks.*

NURSERY NOTES.

MR. DROST'S NURSERY, RICHMOND.

ALMOST overlooking Kew Gardens, and within a stone's throw of Richmond Station on the S.W.R., is situated the nursery of Mr. K. Drost. This establishment was founded by the late Mr. Herbst, and for the past 23 years has been successfully developed by Mr. Drost.

The nursery is interesting in many ways. For several years it has been recognised by the trade as one of the places where Lilac has always been successfully forced during the winter season; that is, from October till the end of April and May, when the outdoor plants come into bloom. There is an impression that the production of Lilac during the dullest season of the year is a troublesome process. In the hands of Mr. Drost, however, there seems to be not the slightest difficulty in securing large quantities of blossom whenever he desires it. The variety he finds most suitable for forcing is known as "rubra de Marly." It has Lilac-blue flowers when grown naturally, but when forced during the winter months, the blossoms become white as driven snow. White varieties, of which "Marie Legraye" is the best, come with a yellowish or creamy hue, and are much more fastidious in their cultural requirements. At the present time Mr. Drost has a grand lot of Lilac in bloom, and a visit to his nursery will well repay a visit.

Besides Lilacs, another of Mr. Drost's specialities is the Hippeastrum or Garden Amaryllis. His plants are in robust health. The bulbs are 5 to 6 inches in diameter, and many of them produce three erect sturdy scapes, on the top of which five to eight flowers of brilliant hues are developed. To give an idea of the vigour of the plants, it may be mentioned that some of the leaves were as much as 5 feet long and 5 inches wide in the middle, while the scapes vary from 2½ to 3 feet high.

Besides the Hippeastrums, the next most striking feature of the nursery, at this season, is the large numbers of Azalea mollis in bloom. Only the finest varieties are grown in large batches as required, and each plant is literally smothered in bloom. Many other interesting items are to be seen, among them being thousands of a bright

Azalea indica—dwarf, sturdy bushes grown in 3½-inch pots and studded with bloom; thousands of Lilium longiflorum and Hydrangea paniculata in all stages of development, while Palms of all kinds, varying from 2 feet to 20 feet high are remarkable for health and cleanliness. To suit the requirements of the trade, they are all grown "hard" in a comparatively low temperature, the result being that they can be transferred from one part of the country to another without risk of catching cold!

Ferns, of course, are grown in vast numbers, and not a trace of disease or pest is to be seen amongst the plants. Each season naturally brings its own peculiar class of plants into prominence, and by and by hundreds of Chrysanthemums will be conspicuous in the nursery. In various stages of development, there are batches of Hydrangea paniculata, which Mr. Drost grows particularly well, and for which he finds a ready sale. *J. W.*

THE ALPINE GARDEN.

GALANTHUS NIVALIS VAR. VIRESCENS.

ALTHOUGH not to be compared in beauty with the ordinary Snowdrop, this variety attracts attention by its quaintness of colouring. It comes into flower a little late, and is much the same in size as an ordinary Snowdrop. It was described by the late Mr. F. W. Burbidge in his paper on Snowdrops read at the Royal Horticultural Society's Conference held on March 10, 1891, and a sketch of the variety, with a description, appears in the *Journal of the Society*, Vol. XIII., Part II., p. 209. The illustration shows the sepals as distinctly striped, and is probably taken from a photograph. Mr. James Allen, at the same Conference, describes it thus: "G. virescens is a very singular-looking flower, reminding one somewhat of an Ornithogalum. The outer petals are pale green, shading off to pure white at the edges, and especially at the tips; the inner petals are entirely green."

This is in accord with the flower as I know it, and one can entirely agree with the subsequent remark by Mr. Allen, that: "At first I did not care for this variety, but it has a quiet beauty which grows on one, and I should not now like to lose it."

It was grown by Dr. Fenzl, the late director of the Vienna Botanical Gardens, who sent two bulbs to Herr Max Leichtlin, and afterwards one was sent to Rev. Harpur Crewe and one to Mr. Allen, whence the stock in British gardens has sprung.

GALANTHUS VIRESCENS (DOUBLE-FLOWERED FORM).

I AM giving the double green-flowered Snowdrop this name with great hesitation, as it is very unlike the single one, and cannot, in my opinion, have sprung from it. I have known of its existence for a few years, having first heard of it from Mr. W. B. Boyd, of Faldonside, Melrose, who is most diligent in finding out the rarest Snowdrops, and to whom we owe the discovery of some of our most distinct forms. It is, I believe, derived from an old Scottish garden. In the autumn of 1905 I had the good fortune to become possessed of a bulb, but it did not produce an inflorescence last spring. This year, however, it is not only giving promise of increase, but it has also given me one flower, and is the most singular-looking of all the Snowdrops I know. The floral segments, of nearly the same length, are practically all green, the shade being a darker one than that of the single G. virescens. The segments are very long and narrow, and slightly shaded; but the carriage of the flower is also singular, being semi-upright, and the whole appearance of the plant reminds one of what we should expect to find in a miniature form of Fritillaria citrina with double flowers, but semi-erect, and darker in colour. The leaves are of a dull green. Probably G. viridiflorus fl. pl. would be a more correct name. *S. Arnott.*

TREES AND SHRUBS.

LONICERA MAACKII (See fig. 112, p. 265).

AT one of the recent meetings of the R.H.S., Messrs. Paul and Son, of Cheshunt, showed specimens of this hardy Honeysuckle, which attracted attention by reason of its slender, arching branches with nearly glabrous, ovate, acuminate leaves and dense clusters of creamy-white flowers. Mr. Worthington Smith's drawing well shows the characters of the plant with the lower lip of the corolla four-lobed and the relatively large pollen grains. These are nearly globular, finely ciliated and with three furrows.

The plant was originally called Xylosteum Maackii by Ruprecht, but as Xylosteum is now considered a section of Lonicera, the name above given is the one to be adopted. The fullest description, accompanied by a coloured plate, is given by Maximowicz in the *Garten Flora* (1884), tab. 1,162.

The species is a native of Southern Manchuria and Northern Japan. Fortune is also stated to have met with the plant in Northern China, so that there is no reason to doubt its hardiness in Britain. It flowered first in cultivation in the St. Petersburg Botanic Garden in 1883, so that it can by no means be considered as a new plant in gardens, though it is not so widely distributed as its merits entitle it to be.

The synonymy of the species may thus be given LONICERA MAACKII—Herder in *Bull. Soc. Imp. Nat., Moscow*, xxxvii (1864), p. 204, tab. 2, fig. 4; Maximowicz in *Garten Flora* (1884), tab. 1,162; and in *Mel. Biol.* x., 67. *Xylosteum Maackii*, Ruprecht in *Bull. Phys. Math.* xv., 369; Maximowicz, *Primit. Flor., Amur*. 136.

THE PROPAGATOR.

As the sap ascends in increasing volume in this month, it is a favourable time for the propagation by cuttings of various species of plants.

CENTAUREA CANDIDISSIMA.

In view of the intended propagation of this plant in the month of July, old stock plants showing for bloom should have the flower buds removed, which will have the effect of inducing numerous lateral shoots to form, which, half-stripped from the base and left hanging by a bit of the rind for a week, or longer time, so as to get healed, will be available as cuttings in that month.

SALVIA SPLENDENS AND ITS VARIETIES, AND S. GESNERIIFLORA.

Cuttings of these plants may now be taken from plants previously cut back, and hastened into growth in gentle heat. The cuttings root easily in a mild bottom heat in sandy loam, having a layer of sand on the surface. They should be removed to a cooler atmosphere as soon as sufficient roots have formed.

RHODODENDRON (AZALEA) INDICUM.

Growing shoots can at this season be used as cuttings, striking them in porous, elastic soil (peat and loam, two-thirds of the former to one-third of the latter, and some sharp sand added), a mixture to be preferred to sand alone, in which the cuttings are apt to die off from lack of nutrition when not at once potted off. It is advisable to put a thin layer of sand on the soil in the cutting pans or pots. No bottom heat is required, merely a regular warmth of about 50° Fahr.; therefore, a bed with a northern aspect is best, and in such they may stand over the winter. The lower leaves, so far as the cuttings enter the soil, should be cut off. Until rooting takes place, they must be covered with bell

glasses having a hole at the top; or, if a case is employed, it must be ventilated occasionally. Cuttings of *Menziesias*, *Rhododendrons*, *Kalmia*, and *Rhodora* may be rooted in the same manner.

BAMBUSA, ARUNDO, AND SIMILAR GRAMINEÆ.

The rhizomes of these plants, if cut into pieces consisting of two joints and laid in a mixture of peat and garden soil on a warm bed of tree leaves and stable litter, and finally covered with a $\frac{1}{4}$ -inch layer of soil, soon push growths. The frame lights should not be more than 3 to 4 inches distant from the bed, and the temperature of the

state which may be found at this season, and at others, according to species and position and aspect, will serve as cuttings. It is advantageous to cut through about one-third of their diameter those shoots which are selected for the cuttings about 14 days previously to taking them. By so doing, a callus forms, which is all to the good of the cutting. If the shoots are very soft, a heel of the old wood should be taken with it. The soil which is employed in the pots should contain a large quantity of sharp sand. The cuttings should be afforded a bottom heat of 60° to 68° Fahr., and top heat of 50° to 55° , and the soil kept in a regular state as regards

mould, placed in an atmosphere of 60° to 65° Fahr., and bottom heat 10° to 12° higher.

AUSTRALASIAN ACACIAS.—The various species can be struck from cuttings at this season and also in the autumn; the cuttings should be of medium consistency—1 to 2 inches in length, and taken off close to the older wood. To strike them, a temperature of 55° to 50° is required, but no bottom heat, and a rather abundant supply of water. The lower leaves should be removed from the cuttings. These species may be struck, if they have simple leaves, from root cuttings, cutting back the hair-like roots and setting the pieces in pots of sandy soil, so that the ends are



FIG. 112.—*LONICERA MAACKII*, HARDY SHRUB: FLOWERS CREAMY-WHITE.

bed must remain at 65° to 75° Fahr. Under the influence of this amount of warmth and moderate applications of water, shoots soon appear at the nodes, which quickly push forth roots at the base, and may then be removed, together with a small bit of the rhizome, and potted, placing them in a warm bed to develop. Those pieces which have not pushed shoots may be returned to the bed of soil, so as to compel the remaining nodes to break.

LEGUMINOUS PLANTS.

In general, the young shoots in the half-ripe

moisture, and for that reason cutting pans should be used 2 inches more in diameter than the bell glasses that cover them, and the water should be applied outside the latter. The more suitable glasses are those with a hole at the top. These remarks apply chiefly to the cool-house species, those of the stove requiring more warmth.

ERYTHRINA.—The young shoots which at this season form at the neck of the root stock should be removed, together with the swollen base, and inserted singly in pots of sandy loam and leaf-

visible, and covering them with bell glasses. In the same manner *Bouvardias*, *Plumbago rosea*, *Clerodendrons fragrans* and *Bungei*, *Passifloras*, *Theophrasta*, *Aralia papyrifera*, and *Wigandia caracasana* may be struck. The tropical species may be struck from well-developed shoots as soon as growth has begun. They require a temperature of 65° , and bottom heat of 75° to 80° Fahr.

MYRTUS, CALLISTEMON, AND MELALEUCA, &c.—Cuttings of these species may be rooted in the present month in dung-beds covered with frames, and if many cuttings are to be struck, a bed of

sandy peat soil and two parts sand answers as well as pots. The cuttings should be divested of their leaves to one-third of their length, and inserted to that depth. If pots be employed, the mixture is the same, and the drainage should consist of a layer of crocks 2 inches in depth. A moderate bottom heat and top heat of 50° to 55° Fahr. are necessary. Of Eucalyptus, choose as cuttings shoots found on old stems and furnished with a swelling. Those species with but little powder or wax on the leaves, and which have hard leaves, must receive much moisture; *E. cordata*, *E. perfoliata*, and *E. pulverulenta*, a lesser quantity. *F. M.*

THE ROSARY.

NEW ROSES OF BRITISH ORIGIN.

SEVERAL new varieties of merit have recently been sent out by Messrs. Wm. Paul & Sons, of Waltham Cross. Of these, one of the most attractive by reason of its brightness is Warrior, a new scarlet-crimson Hybrid Tea. The buds are of blood-red colour, and the variety somewhat resembles the beautiful Papa Gontier in its characteristics. Celia, also raised by this firm, is a highly decorative and extremely floriferous Rose; so much so, that disbudding is advisable if large flowers are required for exhibition purposes. Dora is a Hybrid Tea of exquisite form; the colour is of the shade termed "silvery blush."

Amongst the more notable Roses recently introduced by the Irish Rosarians, Messrs. Alex. Dickson, of Newtownards, may be mentioned the variety Lena, a garden hybrid of unique beauty (it is figured in the firm's autumn catalogue); the colour is a rich shade of apricot, with a delicate suggestion of primrose at the edges of the petals as the flowers expand. Mrs. G. W. Kershaw, of strong, vigorous habit and free-flowering tendencies, with large, impressive rose-pink blooms; and Mrs. Myles Kennedy, a creamy-white Rose of quite unique grace and distinction, with buff and pink suffusions, described by the raisers, not without expressiveness, as "a glorified Souvenir d'Elise Vardon." This variety was given the Gold Medal of the National Rose Society. Mrs. Peter Blair, a grandly decorative Rose, endowed with splendid foliage; and William Shean, a pure pink variety with flowers of grand dimensions, have also been raised by the Newtownards firm, who have likewise recently given us the beautiful Lady Rosmore, with blooms of a beautiful crimson that is shaded with claret. It was raised by Dr. J. Campbell Hall.

To Mr. Hugh Dickson, of the Belmont Nurseries, Belfast, whose finest seedling, so far, is J. B. Clark, we are indebted for Lady Overton, with petals of a pale salmon colour, shading to silvery pink; and Mrs. A. M. Kirker, pure bright cerise, a Rose of great value for garden decoration. Both of these are Hybrid Perpetuals, a class that has of late years been somewhat neglected in favour of the more delicately coloured Hybrid Teas, which, drawing many of their most fascinating attributes from the Tea varieties, are generally supposed to be more graceful in form and in aspect more refined. Not a few varieties of merit have of late years been sent out by Messrs. George Paul & Sons, of Cheshunt; prominent among these is Nellie Johnstone, of exceedingly bright and luminous colour, with long, pointed buds and petals of the purest pink colouring, with tender violet modification on their outsides. The blooms are fragrant. It is a supposed cross between Madame Berkeley and Catherine Mermet. Richmond is a most interesting derivative from the variety named after Lady Battersea. Two Roses from Colchester are also acquisitions. These are Nance Christy, raised by Messrs. B. R. Cant & Sons, and named after one of the heroines of Mr. S. R. Crockett, the famous novelist. The plant is of vigorous growth, and the flowers are salmon-pink in shade and semi-double. The other is Mrs. O. G. Orpen, a climbing Rose of great attractiveness, of lustrous, roseate hue. *David R. Williamson.*

The Week's Work.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

Window boxes.—Two sets of boxes, one for summer and another for winter use, are more economical and convenient than when the same boxes have to do duty all the year round. If duplicate boxes are available, the summer boxes may now be furnished, after which they should be placed in a cool house for a week or two to partially establish the plants before they are placed in the windows, about the middle of May. At this date no danger from frost need be feared, as the heat radiated from the walls will protect the plants at night-time. The compost used in the boxes should be rich, and should contain sufficient plant-food to last the season, for window boxes cannot be surfaced with manures nor soaked with liquid manure. A good general mixture consists of fibrous loam, with the addition of leaf-mould, bone-meal, and sand. Place a few crocks in the bottom of the box as practicable, rather using as drainage a layer of coarse broken loam. Plant firmly. The selection of plants will, of course, depend upon the owner's taste, but if possible the boxes should be furnished with something different from the ubiquitous white Marguerites and pink ivy-leaved Pelargoniums, which, while forming a pretty combination, lack distinctness, and on repetition becomes wearisome. To many people occasional plants of Heliotropes, Lippia citrodora, and scented-leaved Pelargoniums of the less perfumed class, are acceptable in a window box. For a north window such plants as Begonias, Calceolarias, Fuchsias, and Pansies are recommended.

Zinnias.—Seeds of this annual should now be sown. Place the seed-boxes in a gentle bottom heat, and as soon as the seedlings are large enough to be handled, transplant them singly. When these plants are rooted do not subject them to a high temperature.

Campanulas.—Sow in moderate heat seeds of both the blue and white varieties of *C. pyramidalis* in pans of light soil. Last year's seedlings which were planted in nursery beds are now throwing up their flower-spikes. The present is a suitable time to lift and plant Campanulas in small groups in the herbaceous borders, and also in large beds of miscellaneous plants in the flower garden.

Annuals.—Seeds of Sweet Peas and other flowering plants should be sown in the open ground to provide a succession to the first sowings.

Hardy Bamboos may be planted at any time during the next few weeks. Shelter from winds is essential, an ideal spot being a gentle slope, and, if possible, one bordering a stream which has a good background of dark foliage to act as a foil to the lighter plumes of the Bamboos. As the roots of Bamboos are excessively brittle they should be disturbed as little as possible when planting, and it will be better to smash the pot than to force the plant from it. The young shoots also share this brittle character, and where game or rabbits abound it will be wise to place some wire-netting around the choicer varieties for a time.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Pines.—The earliest fruits will now be colouring, they will therefore require a dry atmosphere, and very little moisture at their roots; watering must be discontinued entirely ere the fruits become quite ripe. Plants that are coming in flower and those that have just passed that stage in the same pit should not be grown in too moist an atmosphere, but it will be necessary to damp the paths twice daily, and to ventilate freely in order to keep the plants sturdy. The night temperature should be regulated to 75° or 80° Fahr., and the structure should be closed in the afternoon with the inside temperature at 90° Fahr. Maintain a steady bottom heat of 80°. Whenever the plants that have gone out of flower require moisture at their roots, give warm manure water.

Pines which are growing actively in 8-inch pots should now be shifted into other receptacles 2 or 3 inches larger. After potting, plunge the plants in a bottom heat of 85°, and keep the atmosphere close and moist for a few

days, and lightly spray the plants occasionally with the syringe.

Strawberries should be cautiously forced now. As soon as the fruits are all gathered from the earliest batch, remove the plants to a cold frame, where they may become hardened ready for planting outside. Other batches that are swelling their fruits should be given warm manure water twice a week. Thin the fruits on each plant to eight or ten. Syringe the plants early in the day with hot water; this will help to keep down attacks of red spider, for this pest and green fly must never be allowed on the plants. Remove the latest batch of plants into a cool Peach house; these will furnish fruits up to the time the outside crop is ready. Should the plants be attacked with mildew dip them in a solution of potassium sulphide, using 1 ounce of the chemical to a pail of warm water. The variety Royal Sovereign is very subject to attack by mildew, but this remedy will prove effective. It should be done before the plants are in flower.

Figs in pots or in borders.—Trees on which the fruits are swelling will require to be well supplied with tepid manure water. Some growths must be cut out and others pinched at the fourth leaf and, in the case of the wall trees, tied or nailed to the trellis or wall. Syringe on each afternoon and keep the atmosphere of the house moist during the whole of the daytime. Close the structure early in the afternoon, and reduce the quantity of atmospheric moisture as soon as the fruits begin to ripen.

Cucumbers should have a night temperature of 70° to 75° Fahr. Close the pit with an inside temperature of 80°, and keep the house moist always, as Cucumbers dislike a dry atmosphere at any time. Give plenty of water at their roots, alternated occasionally with manure water. Top-dress and mulch the ridges with spent manure from a mushroom-bed. Syringe freely, especially if red spider or thrip make their appearance, and shade the plants from bright sunshine. Sow for a successional batch.

Early Grapes in pots, which have ripened fruits in bearing, will now require a cool, dry atmosphere and a plentiful supply of ventilation both by day and by night-time. Afford water very carefully and do not allow them to become excessively dry. Treat these vines in pots in much the same manner as that recommended for early vineries in last week's calendar.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Odontoglossum crispum.—On receiving newly-imported plants of this popular Orchid, the grower should carefully examine them, and cut away all dead and diseased parts. A stage in a shady part of the coolest house should be set aside for them, and upon the stage should be placed a thin layer of rough peat mixed with sphagnum-moss. Place the pseudo-bulbs upon this compost, and, if possible, in an upright position, but first damp the moss and peat with a fine syringe. No further moisture will be required for some considerable time, as that derived from the usual daily damping of the house will generally suffice until growth actively commences. If only a small consignment has been purchased, every piece of growth that will form a plant should be separately potted in as small a receptacle as can conveniently be used, filling up to and around the base of the plant with small crocks, and making the plant as firm as possible. At Burford we twist a thin piece of well-dried Fern rhizome around the rhizome of the Orchid, place the plant in the pot, allowing the ends of the rhizome to reach the bottom, and then pack crocks closely around for the purpose of steadying the plant, and keeping it in its proper position. Stand the pots on a moist bed, and pour water through the crocks occasionally to assist the pseudo-bulbs to regain their plumpness. In due time the new shoots will appear, and fresh roots form at the base, when the plants should be potted in well-drained pots and with only a thin layer of moss and peat pressed moderately firm on the surface. After potting, afford gentle waterings, but as the new growths gain strength, moisture may be more frequently and liberally afforded.

Old and well-established plants of *Odontoglossum crispum*, also its congeneric species and hybrids are in various stages of growth. Many are sending up strong flower-spikes, and these

plants will require plenty of water at their roots until after the inflorescences have been cut, when the quantity of water afforded should be only sufficient to keep the pseudo-bulbs in a fairly plump condition.

Afford plenty of atmospheric moisture to plants in the cool house, especially in those houses which are naturally dry, and admit as much fresh air as possible whenever the weather will permit. Shade the plants from the direct rays of the sun, and afford a minimum amount of fire-heat, unless the nights become very cold. As the season advances, artificial heat should be dispensed with, unless a morning frost is apparent, when the valves should be turned on when retiring for the night, for the temperature should not drop below 50° and 55°. Turn the valves off again the first thing in the morning, and throughout the day, when the external air is at a temperature of about 40°, the bottom ventilators should be slightly opened, and when it has risen to 45° more air should be admitted, and at 50° a little top ventilation should be afforded, increasing it in accordance with the outside temperature. On dull, cold days, maintain a temperature ranging between 55° and 60°.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bickton, East Devon.

Strawberry beds.—A month having elapsed since the manure was forked into the ground between the plants, it will now be time to lay down clean straw for the fruits to rest upon later, but before doing this work, the flat hoe should be drawn up the rows when the ground is dry enough. The recent rains have improved the appearance of the Strawberry beds, and a mulching of straw applied now will preserve much of the moisture in the soil for some weeks. The littering of Strawberry beds is better done ere the flower-spikes are advanced, for there is always a danger of crippling many of these. Long, strawy litter from the stable yard is often used, but the manure is liable to affect the flavour of the fruits, and many employers object to its use. There is nothing better than clean oat or barley straw, as these are pliant, and can be quickly laid around each plant. After the fruit has been gathered, the straw can be removed and mixed with stable manure. It is advisable to scatter a layer of fresh soot around each plant before the straw is applied, for the purpose of warding off slugs. Pinch out the flowers of the perpetual bearing kinds.

Raspberries.—Suckers thrown up far from the parent plant should be cut up with the flat hoe, raked off, and wheeled to the rubbish heap. Perhaps of all our hardy fruits, the one under notice thrives best when given a cool, moist rootrun; the plants will therefore benefit by a thick mulching of partly-decayed manure spread evenly a yard in width either side of the canes.

Insect pests.—The Plum is one of the first trees to be attacked by insects, the curled growths, and oftentimes withered shoots being an indication that an insect is present. Upon unfolding the damaged leaves, a tiny worm or maggot will be found, and this should be destroyed by squeezing between the finger and thumb.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Peas that were planted from pots, &c., as advised early in the month, will be ready for sticking, and, if possible, a mulching of stable litter should be applied at the same time. These mulchings cannot be too strongly recommended, and are especially valuable throughout the summer, particularly on soils of a light texture, and in dry seasons. Batches that were sown in the winter or early in the New Year in cold houses and frames will now be in full flower, and in some instances the pods will be setting. Continue to make fresh sowings fortnightly, and although Peas give good results if sown in drills, by far the better plan is to sow them in trenches as previously explained, a system that proves its value in seasons when watering has to be largely resorted to.

Vegetable Marrows.—The main sowing should now be made: the more forward of the seedlings can be placed under handlights and cold frames for furnishing early fruits, and the remainder planted later in the open, where they must be given some temporary protection for the first fortnight or so.

Cardoons on heavy land succeed well if planted

on the flat and without trenches. Three seeds should be placed in a four-inch pot, and the seedlings eventually thinned to the strongest plant. As soon as large enough, plant in rows 3 feet 6 inches apart. On light soil Cardoons are best grown in trenches prepared as for Celery. This plant is not so generally grown as it should be, for it provides a welcome addition to the commoner vegetables.

Winter vegetables, such as Borecoles, Broccoli, Savoys, &c., should now be sown in shallow drills in a seed bed. A space of 12 inches between the rows should be allowed, but if it is intended to transplant them before their final planting, then a distance of 6 inches will be sufficient. In some gardens, these form the whole of the winter green vegetables, but the list can be added to by the inclusion of the newer Kales, such as Improved Hearting, Hardy Sprouting, and Chou de Russie.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Winter-flowering Begonias are almost indispensable subjects in gardens. *B. Gloire de Lorraine* may be had in bloom at almost any season of the year, but as a general rule it is most welcome in the autumn and winter months. It is one of the easiest plants to propagate, and its cultivation presents no difficulties. If flowering plants are required for next autumn and winter, the cuttings should now be inserted,



FIG. 113.—BEGONIA GLOIRE DE SCEAUX.

around the sides of a 60-size pot filled with light sandy soil. Place the cuttings in the propagating frame, where they will quickly form roots, after which they should be given less heat, and later be potted singly, in a compost of equal parts of turfy loam and leaf-soil, with plenty of sand added. A shelf in a warm house is a suitable place for staging the young plants, which must be shaded from strong sunshine, syringing the plants freely night and morning, and generally maintaining a moist atmosphere in the house in which they are growing. The white variety Turnford Hall makes a pleasing companion plant to the red variety. Among other varieties of winter-flowering Begonias *B. nitida* and *B. n. alba* are persistent bloomers, and a batch of these plants made a fine show in these gardens throughout the past winter. *B. nitida* does well either grown in pots or planted out. The flowering shoots are effective when trained on wires or pillars.

Begonia Gloire de Sceaux (fig. 113) is another useful winter-flowering plant, the bronzy, metallic sheen on the leaves contrasting well with the rose-pink of the flowers. Grown under ordinary conditions, this variety is at its best in spring, but where its growth can be hastened in the summer it flowers in mid-winter, when its value is greatly enhanced. It is also a good

plant for indoor decoration, the warm, dry atmosphere in such situations suiting it when in flower. Cuttings should be inserted at once, and the plants grown without a check all through the season. Watch for *Begonia-rust*, and also for a very small thrip, which, if left unchecked, will quite cripple the growth of the plants; a spraying with some safe insecticide is the best preventive.

Other valuable additions are the hybrids from *B. socotrana* and the tuberous Begonias, of which Ensign, John Heal, Mrs. Heal, and Winter Perfection are examples.

PUBLIC PARKS AND GARDENS.

By W. W. PATTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Meteorological instruments in public parks.—As meteorological conditions have such an all-important bearing upon horticulture, it is but natural that gardeners should take a very practical interest in the subject, and have a few meteorological instruments placed in some more or less suitable position in the garden under their charge. This, coupled with the fact that long experience enables most gardeners to detect those subtle alterations in atmospheric conditions which usually indicate a change in the weather, leads to gardeners being regarded by the general public—rightly or wrongly, as the case may be—as authorities upon most matters meteorological.

Interest to the public.—Apart from the bearing that this subject has upon horticulture, it has also much interest for the public, and for this reason one park in every town of importance should be furnished with a collection of standard meteorological instruments, the records of which should be available at all times for inspection. The collection of instruments in a public garden has, as a rule, a double advantage over those often found in private gardening establishments. In the latter case, unless the owner of the garden is himself an enthusiast, the collection is generally of a very modest character, consisting merely of a rain gauge, maximum and minimum thermometer, the first of which is perhaps the only one of the three instruments that gives a correct record. In a public park station the instruments are not only more numerous and diverse in character, but by being tested periodically at Kew, their readings can be thoroughly relied upon. The records from apparatus of this description are not merely of passing interest to ordinary observers, but are of permanent value for future comparisons.

Local value of records.—For several years past the Parks and the Health Departments of Cardiff have established a collection of meteorological instruments in one of the parks under their control, from which day by day records of the meteorological conditions obtaining in the immediate district have been supplied to the citizens by the aid of the local Press. Two years ago the Meteorological Office recognised this as a climatological station, and in this way it has become of more than local importance. At the present time the collection of instruments consists of a maximum thermometer, minimum thermometer, dry-bulb and wet-bulb thermometer—all four enclosed in a Stevenson screen, a grass minimum thermometer, which indicates terrestrial radiation, two earth thermometers, and a rain gauge. As the Cardiff Naturalists' Society is about to present the Corporation with a barometer, a sunshine recorder, and black-bulb and bright-bulb thermometers, the collection will soon be a fairly complete one and of considerable value to persons interested in meteorology.

Chart board.—In order to enable visitors to have the records of the various instruments day by day, a chart (to be marked each morning at 9 o'clock) will in future be exposed on a board specially prepared for the purpose and placed in close proximity to the site where the readings are taken.

Position for the instruments.—The position for a climatological station must be carefully selected. It should be in the open, and away from trees or other shelter, and, if possible, on flat ground. Care has to be taken when fixing a Stevenson screen that it is so placed that the instruments contained in it are exactly 4 feet above the ground level and facing due north. The black and bright-bulb thermometers—used to record solar radiation—require to be fixed horizontally on a stand 4 feet above the ground, but with their bulbs facing due south.

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Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

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Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING MONTH.

TUESDAY, APRIL 30—Roy. Hort. Soc. Coms. meet and Nat. Auricula Soc. combined Show in R.H.S. Hall. British Gardeners' Assoc. Ex. Council meet.

WEDNESDAY, MAY 1—Nat. Auricula and Primula Soc. Sh. (Midland Section) at Birmingham Bot. Gardens. Croydon and Dist. Spring Fl. Sh.

THURSDAY, MAY 2—Linnean Soc. meet. Manchester and North of England Orchid Soc. meet.

SATURDAY, MAY 4—Dresden International Hort. Exh. (May 4-12). Soc. Franç. d'Hort. de Londres meet. German Gardeners' Soc. meet.

TUESDAY, MAY 7—Mannheim International Exh. of Orchids (3 days). Scottish Hort. Assoc. meet. Nat. Amateur Gard. Soc. meet.

WEDNESDAY, MAY 8—Roy. Caledonian Hort. Soc. Sh., Edinburgh (2 days).

TUESDAY, MAY 14—Roy. Hort. Soc. Coms. meet.

SATURDAY, MAY 18—German Gardeners' Soc. meet.

MONDAY, MAY 20—Bank Holiday.

WEDNESDAY, MAY 22—Devon County Agricultural Sh. at Bideford (2 days). Roy. Bot. Soc. and Nat. Tulip Soc. Exh., Botanic Gardens, Regents Park.

FRIDAY, MAY 24—Linnean Soc. Anniversary meet, 3 p.m. Roy. Bot. Soc. meet.

MONDAY, MAY 27—Annual meeting and dinner of the Kew Guild at the Holborn Restaurant.

TUESDAY, MAY 28—Roy. Hort. Soc. Sh. in the Temple Gardens, Thames Embankment (3 days).

WEDNESDAY, MAY 30—Ann. meeting British Gardeners' Assoc.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—49.2°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, April 24 (6 P.M.): Max. 78°; Min. 58°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, April 25 (10 A.M.): Bar., 30.2; Temp., 61°; Weather—Overcast.

PROVINCES.—Wednesday, April 24 (6 P.M.): Max. 67° Ipswich; Min. 51°; Scotland, N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Border Plants, Hardy Bulbs, Palms, &c., at 12; Lilliums in cases and miscellaneous Bulbs at 5; at 67 & 68 Cheapside, E.C., by Protheroe & Morris.

FRIDAY—

Imported and Established Orchids in variety from various growers; Orchids in flower and bud, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Deterioration in Strawberries.

The following letter in respect to alleged deterioration in varieties of Strawberries is sent us by a correspondent.

"It is now becoming plainly apparent that there is an urgent need for new varieties of market Strawberries, both for early and for late cropping, and superior, if possible, to both Royal Sovereign and Sir Joseph Paxton when they were first introduced. For some years past, and particularly during the past two years, both the once magnificent Royal Sovereign and Sir Joseph Paxton, the standard early and late varieties respectively, have shown unmistakable signs of deterioration and loss of stamina. So much has this been felt to be the

case this past year or two in some of the great fruit-growing districts that growers are complaining that these varieties are scarcely profitable to grow, and so far they see no sign of any new varieties to take their place. Not one of the newer sorts introduced since the two varieties mentioned were raised are of better use for profitable culture, the general fault being that the fruits are too soft to travel the shortest distance to market. In the big fruit-growing district of the eastern counties, covering parts of Cambridgeshire, West Norfolk, and South Lincolnshire, and including the Wisbech district where thousands of acres of Strawberries are grown, not a single acre of any other kind but these two can be met with. But the plantations, especially during the past two years, have become very weak in growth, and barrenness is on the increase, the weight of fruit per acre not being, at most, two-thirds the crop of some few years back and the individual fruits are not as large nor of such luscious quality. Even when the plants used in the making of new plantations are obtained from maiden plants and are not allowed to fruit until the second year (when they should be at their best) the produce is still inferior to that of former years, both in weight and in quality. Mildew is also more prevalent, especially in the case of Royal Sovereign, and during last season some plantations were utterly ruined by this pest. Barren stools are also much more frequently met with.

Many of these troubles may, perhaps, be attributed to the growers themselves as the consequence of bad and careless cultivation, &c. Runners for new plantations are frequently obtained from old and worn-out stools, in some cases as much as five years old, and no attempt at selection is made. In the majority of cases mildew is allowed to attack the whole field before any means are used for checking the fungus. There is little doubt but that both Royal Sovereign and Sir Joseph Paxton would have been as good as ever to-day had the growers practised selection when making new plantations. In the absence of new varieties to supersede these kinds there is a great need for some trade grower to make a speciality of selecting and re-selecting runners from stools that show improved qualities. To commence with, runners should be procured from maiden plants; that is, those that are one season planted from the runners and which have not yet fruited. Again, runners should be taken from plants which show extra vigour in foliage and which have developed the largest and finest quality fruits. The first plants on the runners only should be utilised, or, at most, not more than the second ones, and none should be taken that develop later than about August 1. They should be layered into 3-inch pots and immediately the pot is full of roots the plants should be detached from its parent and planted into its permanent quarters, for it is a mistake and a cause of barrenness to allow the runners to remain connected with the old plants until they become pot-bound. Should it not be convenient to practise the potting system, runners may be planted direct from the beds, but with somewhat less success. The same system of selection and pinching, as when pots are used, should be employed, and in no case should the planting be undertaken later than the end of September or the beginning of October, otherwise frost and wet will cripple the plants before they secure a good root-hold. To carry the system of selection still further, it would be necessary to watch closely for stools in any plantation, and no matter of what age, that show a decided advance in cropping qualities, colour of fruits, or other improvement. Such stools should be marked with a stake and be given exceptional treatment with a view to selecting the runners. If methods such as are described above be regularly adopted there would be less cause for complaint in varieties deteriorating, but on the contrary an improvement would be seen. As every cultivated plant is greatly

stimulated by a change of soil and situation, it would be of value if growers arranged with other cultivators a hundred miles or so away to exchange annually a certain quantity of Strawberry plants for stock purposes."

OUR SUPPLEMENTARY ILLUSTRATION.—It would seem as if the process of "improvement" could no further go in the matter of the florists' Hippeastrum. In the magnificent strains exhibited by Major HOLFORD, Messrs. VEITCH & SONS, and Messrs. KER, of Liverpool, we seem, as far as number of flowers, their size, form, and colour are concerned, to have reached a stage when, however much variety in colour may be obtained, yet but little novelty can be expected. It is, therefore, desirable that new blood be introduced so as to extend the limits of variation. To this end Dr. BONAVIA has been experimenting by crossing *H. pardinum* with an ordinary florists' Hippeastrum. The result is illustrated in our supplementary plate, and is decidedly promising. The colour is white profusely spotted with carmine. Even the midribs of the perianth-segments are profusely spotted. The spike bore four flowers and was produced before the leaves. Several seedlings were raised from the same cross, but this was the most heavily spotted.

ROYAL HORTICULTURAL SOCIETY.—The next exhibition of flowers and fruits will be held in the Hall at Vincent Square, Westminster, on Tuesday, April 30, in conjunction with the National Auricula Society's annual show. In the afternoon a lecture on "The Amateur, and Horticultural Law" will be delivered by Mr. H. MORGAN VEITCH.

SEED TESTING.—Whilst each of our large firms has its own seed-testing department, it is somewhat singular that there should be such a deficiency of public seed-testing stations here as compared with the Continent. The station at Tharandt, in Saxony, has a wide reputation, that at Zurich, under the charge of Dr. STEBLER, is equally well known. At Hamburg there is a Versuchstation und Samenprüfungs Anstalt. There are several in Sweden, one in Vienna, and a large number in the United States. We might mention others, but we have said enough to show our own defect in this particular. The Royal Agricultural Society has, for nearly forty years, done its best to satisfy the requirements of its members, its laboratory having been conducted by Mr. CARRUTHERS, and much useful work has been done for farmers' associations and even for foreign Governments. Mr. CARRUTHERS, in association with Mr. HANS GUSSOW, now proposes to extend his operations, and we can but wish him and his associate every success, and recommend those who require information about the purity and germinating power of seeds, or about plant-diseases in general, to avail themselves of the assistance of the gentlemen we have mentioned. To extensive knowledge they add prolonged experience, so that those who apply to the London Botanical Laboratory and Seed Testing Station, 44, Central Hill, Norwood, may be sure that they will obtain, at moderate expense, trained assistance from those highly qualified to give it. Much information of this kind is given weekly in our columns, entailing on us much trouble, expense and loss of time for which no direct return is obtained or even expected. If some of this work, however, is taken off from us, we shall be left the more free to attend to the more legitimate duties of journalism. The tariff of fees asked by Messrs. CARRUTHERS and Gussow is fixed very low and in some instances too low, as in the case of the "determination of a weed or other plant with report on its qualities and the means for its extermination," or where "a report on a disease affecting the plants of the farm, garden, orchard or forest" is desired. For



HIPPEASTRUM "QUEEN OF SPOTS," RAISED BY DR. BONAVIA, FROM A CROSS BETWEEN
A SHOW VARIETY AND H. PARDINUM.

such services as these, demanding as they do, generally, considerable expenditure of time, and rendered as they are by highly trained and competent authorities, the fees asked appear to us disproportionately small. Professional services such as these should either be rendered gratuitously or, if remunerated, the remuneration should be adequate.

LINNEAN SOCIETY.—Mr. W. CARRUTHERS, F.R.S., formerly president of the Linnean Society, will attend at the celebration at Upsala of the 200th anniversary of the birth of LINNÆUS as the representative of the society. Mr. B. DAYDON JACKSON, as we formerly mentioned, will also attend the meeting.

—The next general meeting of the society will be held at 8 p.m. on Thursday, May 2, 1907. Papers:—(1) Prof. E. B. POULTON, F.R.S., F.L.S., "The Fauna and Flora of Abyssinia compared with those of West Africa;" (2) Mr. CYRIL CROSSLAND, M.A., "Report on the Marine Biology of the Sudanese Red Sea" (communicated with an introduction by the president); (3) "Formation of the Shone Cliff near Alexandria;" (4) "Recent History of the Coral Reefs of the North-west Shores of the Red Sea;" (5) Mr. E. R. SYKES, F.L.S., "Polyplacophora collected by Mr. Cyril Crossland;" (6) Mr. C. J. WITTH, "On Chelonethi (Pseudoscorpions) from Asia and Australia" (communicated by the Rev. T. R. R. STEBBING, F.R.S., F.L.S.); (7) Mr. A. B. DARBISHIRE, "Note on the Function of the Spiracle in certain Elasmobranchs" (communicated by Prof. A. DENNY, Sec. L.S.). Exhibition:—(1) Prof. E. B. BULTON, "Probate of the Will of Richard Anthony Salisbury," and (2) "Manuscripts of Dr. W. J. Burchell, F.L.S.," presented to the University of Oxford by Francis A. Burchell, Esq., Rhodes University College, Grahamstown, grand-nephew of the great naturalist and explorer.

R.H.S. EXAMINATION FOR PUBLIC PARKS' EMPLOYEES.—The results of the second examination held by the Royal Horticultural Society of the employees in public parks have now been published. Of the 59 candidates who entered, 51 have passed, 3 in the first class, 17 in the second, and 31 in the third. These figures show a considerable advance over those obtained in 1906, when the numbers were 6 in the first class, 11 in the second class, and 26 in the third class respectively, making a total of 43 out of 90 who entered. Of the 59 candidates who sat at the last examination, 56 were in the employment of the London County Council, and of these 48 passed, 3 in the first class, 17 in the second, and 28 in the third. Apart from the educational value of these examinations, the actual pecuniary advantages are considerable. In the parks service of the London County Council, the under gardeners who are successful in this examination are classed as gardeners, and receive an immediate increase in their wages of 1s. a week, with a possibility of obtaining two further increments of the same value each year, or a maximum of 30s. if they are placed in the first or second class. As the higher posts in the Council's parks are filled by promotion from the lower ranks, the obtaining of such a qualification is very important, especially as, when considering the claims of candidates for promotion, due regard is had to the possession of certificates in practical horticulture. Moreover, in filling up vacancies on the permanent staff, preference is given to those applicants who have passed the examination of the Royal Horticultural Society.

"KEW" SEEDS.—The "Kew Seed Company, Kew Gardens, Kew," must not be confounded with the Royal Botanic Gardens, Kew. No seeds are sold by the last-named establishment.

NATIONAL AURICULA AND PRIMULA SOCIETY (Southern Section).—The annual exhibition of this society will be held at the Hall of the Royal Horticultural Society, Vincent Square, Westminster, on Tuesday, April 30. The secretary is Mr. T. E. HENWOOD, 16, Hamilton Road, Reading.

BEAUTIFUL GARDENS.—A book with this title has been published by Mr. WALTER P. WRIGHT [Cassell & Co., Ltd.]. Beautiful gardens, how to make and maintain them, are subjects well understood by Mr. WRIGHT, who adds practical experience to good taste, and is sure of an ever-eager band of readers. Beginning with the ideal garden, towards making which all enthusiasts work, we are led to consider gardens that are beautiful and the features that tend to make them so. Lastly, and most at length, are chapters each devoted to one kind of plants (as Roses, Phloxes, &c.), and it is here that most practical hints are given. Fruit and vegetables are not forgotten, and there is a timely "Garden Remembrancer." In "A Garden Year" Mr. WRIGHT introduces some dialogues between three persons who, between them, aim at forming a beautiful garden. The book is illustrated and has an index.

AMERICAN GOOSEBERRY-MILDEW.—The following memorandum with reference to the American Gooseberry-mildew (*Sphaerotheca mors-uvæ*) has been issued by the Board of Agriculture and Fisheries:—"During the winter of 1906-7 the presence of the American Gooseberry-mildew in certain gardens in Worcestershire has been definitely confirmed, and the cases investigated under the auspices of the Worcestershire County Council. The reports which have been sent to the Board of Agriculture and Fisheries show that the extent and seriousness of the disease are much greater than was at first supposed, and, in view of the increased danger of infection which arises when the mildew passes into its summer stage, the Board think it desirable to issue a further warning to all fruit-growers, nurserymen, gardeners, and other growers of Gooseberries. No reports of the presence of the disease elsewhere than in Worcestershire and Gloucestershire have been confirmed, but as it is abundantly clear that the mildew has been present in certain centres in these counties for three or four years, and has spread to many adjoining gardens, among which must be included some nursery gardens, it is only too probable that it will be found in other districts as the spring advances. All Gooseberry-growers are, therefore, advised to watch the plants closely during the summer months, especially those bushes which have been recently bought, in order that the disease may be detected and dealt with at the earliest possible moment. The evidence that has been collected in Worcestershire shows that in most cases it is only the young shoots that have been attacked, and that generally, though not always, the disease has appeared in low-lying, damp situations. The attention of Gooseberry growers should, therefore, be directed chiefly to the damper places and to the young wood. All Gooseberry-growers who have the least reason to suspect infection are advised to spray their bushes with a solution of liver of sulphur (potassium sulphide) from the time the leaves open until the fruit is set. A solution of half an ounce to a gallon and a half of water is recommended for the first spraying, and the strength should be increased to a solution of half an ounce to one gallon of water at the second spraying. In some climates it has been found that spraying with half an ounce to the gallon of water has injured the leaves of the Gooseberry. Growers should, therefore, carefully note the effects of the first spraying, and

if the leaves appear to have suffered any injury from the weak solution, the stronger solution should not be used. On the other hand, if a spray of half an ounce to the gallon does no harm, the grower may resort to somewhat stronger spray fluids. The spray should be applied at intervals of from 14 to 20 days. It must be understood, however, that the liver of sulphur spray is recommended as a preventive, and that it cannot be relied upon to produce a cure. Should any suspicious symptoms be discovered on the plants, in spite of these precautions, the case should at once be reported to the Board. A few slips of bushes showing the disease in its most marked form should be cut off and sent carefully packed in a strong wooden or metal box (not a cardboard box) with the report to the Board. The postage on letters and packages sent by letter post need not be prepaid. All other suspected shoots should be cut off and destroyed at once. Care should be taken to see that the light conidial spores on the bushes are not distributed by the wind to other plants, and the knife or shears used in cutting off the slips should be disinfected immediately afterwards by dipping in the spray fluid. The Board will inform the correspondent as soon as possible if the plants are affected with the American Gooseberry-mildew, and if so he should take immediate steps to prevent the disease spreading. The best means to be adopted will vary in different cases. The following are suggestions for guidance:—Growers must remember that during the summer months the spores which spread the infection are very readily carried from plant to plant. They should, therefore, aim (1) at getting rid of all infected material as soon as possible; (2) at destroying all leaves, buds, and fruit to which it is at all probable that infection has spread. In dealing with small bushes the best plan would be to prune off the branches one by one, to drop them into a pail, and then to destroy by fire or by steeping in a cask containing a solution of four ounces bluestone (copper sulphate) or two ounces liver of sulphur to the gallon of water. In the case of large bushes, it would usually be best to prune off all the young shoots and then to destroy the leaves on the lower part of the bush by employing a spray containing eight ounces bluestone to the gallon of water. It would not be safe to attempt to cut down or dig out affected bushes during the summer, for in doing so workmen would probably spread the disease. Having disposed of all diseased material and of the leaves, buds, and fruit on all plants to which infection may have spread, the grower should next spray the whole plantation with a solution of half an ounce of liver of sulphur to one gallon of water. He should repeat the spraying within a week, and continue it at intervals of 10 days throughout the rest of the season. Spraying should be done on a dry day; if rain should fall soon after spraying, and the liver of sulphur is washed off, the bushes should be sprayed again as soon as they are dry. In order to assist growers in identifying the disease the Board are issuing an illustrated leaflet, which will be sent upon application. American Gooseberry-mildew has attacked Red Currants in Ireland and some other countries, and there is reason to believe that it may also attack Black Currants and Raspberries; these plants should, therefore, be kept under observation by fruit-growers. The Board would again urge upon growers the necessity of taking every possible precaution to prevent the spread of American Gooseberry-mildew during the summer months. From the experience of Irish and Continental growers it would seem likely that those owners of affected Gooseberry bushes who neglect to take drastic measures may incur serious losses. T. H. Elliott, Secretary."

BRITISH GARDENERS' ASSOCIATION.—We are informed that at the last meeting of the Executive Council of the British Gardeners' Association, Mr. R. HOOPER PEARSON in the chair, 18 new members, including three apprentices, were elected, bringing the total up to 1,051. The Secretary read the draft report to be submitted at the annual meeting. The Secretary was instructed to invite, through Mr. GEO. SCHNEIDER, the French gardeners who will visit London in May to attend the annual meeting of the Association. The Secretary undertook to find out the cost of a circular trip to the Continent during the summer. The report of the proceedings of the Publication Committee was read. It was decided that only advertisements of an educational character be published in the *Journal of the British Gardeners' Association*, and these only on the cover. On the motion of Mr. DALLIMORE, seconded by Mr. FULTON, it was decided that the list of members and report of the Executive Council be printed together for circulation, and be kept separate from the *Journal*.

GARDEN CHANGES.—The extraordinary calamity that has overtaken the WIGAN family, by which it has lost two succeeding Baronets in little more than a month, has its sequel in the announced sale of Orchids from Clare Lawn, East Sheen. The late Sir FREDERICK WIGAN, Bt., had a collection of which any amateur might feel proud, and his *Phalænopsis* were probably unequalled in this country. His Orchid-grower, Mr. W. H. YOUNG, who had charge of the Kew Orchids 18 years ago before succeeding Mr. WANT as Orchid-grower to Sir FREDERICK WIGAN, has written the "Orchid Calendar" in this journal for several years, and is generally esteemed as a first-class cultivator. We are informed that he will now be free to take up another situation as Orchid-grower, or as gardener and Orchid-grower, and we hope that he will soon find a suitable field for the exercise of his ability.

THE OUTLOOK IN THE VALE OF EVESHAM.

THE appearance of the Vale of Evesham at the present time is exceedingly promising, but it is never safe to prophesy as to a fruit season until June. In past years we have seen a glorious promise absolutely spoilt by frosts in the latter part of April and in May, and it may be so again. The Plum trees are now in full bloom, and it is a hopeful sign that the leaf has appeared with the bloom. This will no doubt prove a protection should the much-dreaded frosts occur. The trees look exceedingly healthy. It was thought when the cold weather succeeded the prolonged drought that the blossom would be later than last year, but the summer-like weather at Easter made a great difference to the appearance of the country, and the trees advanced very rapidly. The few warm days have been succeeded by a continuance of cold north-easterly winds, and it is feared that these may have a deleterious effect on the flow of the sap, the effect of which will be seen when the stoning process commences. Fortunately, there have been no frosts to speak of at present. The Gooseberry bushes look very healthy, despite the fact that in some plantations the American Gooseberry-mildew was discovered in the autumn. In this matter the Worcestershire County Council, who had the assistance of the Board of Agriculture, took prompt action, but in the absence of powers of compensation, they were able to do little except in the matter of advice. It was unfortunate that two such authorities as Mr. Salmon and Mr. Massee, both of whom visited the affected districts, should have disagreed as to the seriousness of the outbreak and the remedies to be applied, as this led to an amount of apathy which is to be deplored.

Developments of this disease are awaited with interest. Red spider has already made its appearance among the Gooseberries, and various washes are being used to check its ravages. The Apple trees look exceedingly healthy, and the buds are just ready to burst. The Apple-sucker (*Psylla*), which has become a very serious pest, are beginning to hatch out, and we shall soon know the results of the various washes which were experimented with by the Fruit-Pests Committee during the winter. It will be remembered that this committee did a very fine work in counteracting the activity of the winter moth, which practically destroyed the Plum crop some years ago, and it is a very satisfactory sign of the times that the committee has been resuscitated. The Strawberry plants look very strong and healthy. Gardeners have had a bad spring so far, and money has been short. The Radish crop has been very much of a failure, as two sowings were general, and now the yield is short but the price is well maintained. Onions are selling well, but Spring Cabbages, an important crop in this district, are late, and are coming in badly. Many are running to seed. The welcome rain of last week has improved them, but warmer weather is needed if they are to head up well. Asparagus is just coming in, and is

one instance, though soil and aspect appeared identical in both cases. Around Penzance a heavy fall of snow, to the depth of a foot, was experienced. This did considerable damage, the limbs of many Conifers being badly broken, whilst the finest specimens of *Ozothamnus rosmarinifolius* in the south-west was beaten to the ground, necessitating it being cut hard back. Frost of an intensity of from 10° to 16° Fahr. was registered in this district, but probably more damage was done in exposed gardens by a bitter easterly gale which raged for days during the continuance of the frost. In one garden all the plants of *Echium*, *Mesembryanthemum*, *Arctotis*, and *Gazania* (10 varieties) were killed, as were *Myoporum laetum* (a plant 18 feet in height, the largest specimen in the south-west), *Meryta Sinclairi*, *Acacia armata*, *A. longifolia*, *A. lophantha*, *A. verticillata*, *Pittosporum undulatum*, *Brachyglottis repanda* in flower-bud, clumps of *Iris* (Morea) *Robinsoniana*, 6 feet high, *Cantua dependens*, *Solanum jasminoides*, *Candollea tetrandra*, *Psoralea pinnata*, a fine specimen in another garden, 10 feet high, being also killed. *Metrosideros* (true), not the *Callistemon* that is usually sold under this name, has nowhere been injured. Other plants killed or badly hurt are *Hoheria populnea*, *Furcraea*



FIG. 114.—SHOWING THE WHITEWASHED FRUIT TREES, WITH THE POET'S NARCISSUS GROWING BETWEEN THEM, AT EVESHAM.

meeting with a ready sale. There will be no bulk in the market until the conditions change. Flowers, of which more are grown every year, are late, but are now coming in. Wallflowers sell poorly, and the Narcissus were too late for the Easter festival, and consequently have suffered in price. They will be at their best at the end of this week. We are able to give a photograph of a field of these flowers beneath Plum trees in full bloom, and this is an example of what may be seen by the acre in the Vale H., April 15.

EFFECTS OF THE WINTER IN THE SOUTH-WEST.

I HAVE just returned from a tour of gardens in southern Cornwall, where I carefully studied the effects of the past winter. The more one examines the eccentricities of the frost the more inexplicable do they appear. In one garden a plant is killed that in another place is uninjured, and vice versa. This I noticed in more than

longæva, *Buddleia madagascarensis*, still alive in two other gardens against walls; *Semele androgyna*, so badly cut that its recovery appears problematical, and *Calceolaria Burbidgei*, which is dead in all cases except one that came under my inspection. In the garden under notice, several species of *Correa* and the New Zealand *Aralia crassifolia* were unhurt, whilst *Lomatia ferruginea* also came through the winter unharmed without protection. In other gardens in the neighbourhood of Penzance the following losses occurred: *Thibaudia acuminata*, *Lagerstroemia indica*, *Fuchsia triphylla*, *F. Dominiana*, *Euryops virgicus*, *Solanum Wendlandi*, *Eriostemon pulchellus*, *Lonicera Hildebrandtiana*, *Phenocoma prolifera*, *Brachysema acuminata*, *Leschenaultia biloba major*, *Sutherlandia frutescens*, *Dendromecon rigidum*, *Sparmannia africana*, *Tecoma jasminoides*, *Cestrum aurantiacum*, *Leonotis Leonurus*, and *Lasiandra macrantha*, though in one garden this was breaking again freely. The vicinity of Falmouth did not suffer as severely as that about Penzance,

and in a noted garden in the former town Myoporum laetum was scarcely injured, but Solanum aviculare, 15 feet in height, was killed, as was Acacia lophantha, and Datura sanguinea, 14 feet in height and 24 feet through (the largest specimen known) was dead to the ground level, but it will doubtless break again from the root stock. A fine plant of Sempervivum holochrysum was badly injured, and but a small piece is alive.

TREMOUGH.

At Tremough, Rhododendrons grafted the preceding year lost some of their lower leaves, but the young leaves at the top of the shoots were unharmed. Other losses around Falmouth were large plants of Sollya heterophylla, Swainsonia alba, Grevillea Preissi, G. pendula and Cape Heaths. The garden that had suffered least of all those that I visited was Trebah. This is situated in a sheltered valley running down to Helford River and is about 8 miles from Falmouth. On the house an Ivy-leaved Pelargonium was alive, but every other plant of this flower that I saw, excepting one on some Government buildings close to the water at Falmouth, was dead. The Zonal Pelargonium is evidently hardier, for a plant that had reached the eaves of a small house in a street in the outskirts of Penzance was apparently uninjured, and I saw others that were scarcely damaged. Tacsonia quitensis and T. mollissima were shooting again from their bases. Three fine plants of Psoralea pinnata, about 7 feet in height, were absolutely unharmed, not a leaf being browned, and only the upper foliage of a large bush of Loropetalum chinense, 4 feet in height and 6 feet through, was harmed; an Echium was also uninjured, this being the only one I saw that was not killed. A specimen of the Cape Silver Tree (Leucadendron argenteum), 7 feet in height, which has been planted in the open for six years, had its foliage a little cut, but was not seriously hurt. Metrosideros robusta and M. lucida were both killed, as they were in all gardens in which they were growing, and a fine tree of Acacia lophantha, 15 feet in height and 18 feet in spread, was dead, but a young plant in a sheltered spot was alive and green. Young plants of Solanum aviculare were also alive, though the finest specimen was killed; Grevillea robusta, Libonia floribunda, and Dimorphotheca Ecklonis were unharmed. Greenhouse Rhododendrons, of which there are enormous bushes in the open, had not a leaf injured, but the greatest proof of the exceptionally favourable conditions at Trebah were the Tree Ferns, which, although standing in the open with no protecting branches overhead, had perfectly green fronds, whereas in other gardens the leaves were quite brown.

PLYMOUTH.

In the neighbourhood of Plymouth the frost was more severe, and shrubby Veronicas were killed. Calceolaria integrifolia was cut to the ground, but is breaking strongly from the base. The past winter has certainly been the most disastrous experienced in the south-west for many years. In my garden, at the mouth of the Dart, Sollya heterophylla, Semele androgyna, Bowkeria triphylla, Mandevilla suaveolens, Lonicera Hildebrandtiana, and Salvia dichroa are uninjured. Iris Robinsoniana, Salvia leucantha, and Arctotis aureola have been badly damaged, but the two last-named are breaking from the root-stock, and Iris Robinsoniana, after the dead leaves were cut away, showed green beneath, and will doubtless recover. Arctotis aspera arborescens is dead, as is Psoralea pinnata and an unprotected plant of Lagunaria Patersoni, but another that was protected has survived. Myoporum laetum is badly hurt, but alive, and M. rosmarinifolium is dead, as are Solanum aviculare and Gazania longiscapa. Nowhere in Cornwall have Embotrium coccineum or Clethra arborea been damaged, and Clanthus puniceus has, only here and there, been slightly cut. S. W. Fitzherbert.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

THE EMPLOYEES OF THE SEED AND NURSERY TRADE OF THE UNITED KINGDOM.—How many there may be I do not know, but the number must be considerable. With the exception of a few associations in such centres as Edinburgh and Dublin, there is no organisation of a widely-spread character to which an employee, however isolated, might belong, and through which, if need be, he might express his opinions. Gardeners have societies scattered up and down the country, and unquestionably these bodies have done much to stimulate and spread a wider and deeper knowledge of the things of that profession. The seed and nursery trade has its association and its various journals, but it must be admitted that often the employee, unless he holds a substantial position, is debarred from seeing these publications, and, further, his interests are but little catered for in any one of them. The question has long been in my mind and probably in that of not a few others, whether it would be desirable and feasible to form an association of the seed- and nursery-trade employees of the United Kingdom. I believe that employers generally would view such an association with favour and encouragement, as tending to foster a larger interest in their work, and as helping to develop what latent talent many employees may possess. It will be at once seen that such an association would be of little practical value if there were no means of bringing the members into continual touch with each other, and this would probably be best achieved by a journal issued at regular intervals, in which topics of general interest should appear, grievances could be aired, discussions carried on, and information disseminated. Such a paper might possibly be further utilised as a means of assisting members in various ways. It is not my purpose, however, neither is this the occasion, to attempt to plan out the full possible operations of such a journal or association, but to solicit the opinion of my fellow-assistants on the question: "Whether an association of employees is desirable and feasible." The Editor is in possession of my name and address, and in the meantime some of my colleagues might favour him with their opinions. *Seedsman.* [Seedsmen's assistants are qualified to become members of the British Gardeners' Association, and that body is about to bring out a journal to fulfil the very objects to which our correspondent refers. The Secretary is Mr. J. Weathers, 7, Talbot Road, Isleworth, with whom "Seedsman" should put himself in communication.—Ed.]

ROSA WICHURAIANA is not merely a manuscript name, as stated on page 260 of your last issue. It was fully and carefully described by Crépin twenty years ago in the *Bulletin* of the Belgian Botanical Society, Vol. XXV., part 2, page 189. It was also described and figured in Sargent's *Garden and Forest* for 1890, plate 477, and under the name of R. Luciae, by Sir J. D. Hooker in *Bot. Mag.*, t. 7421. J. G. Baker. [We took our statement from the *Index Kruensis*.—Ed.]

LEAD ARSENATE AS A SPRAY.—The season is approaching when fruit growers will be spraying their trees for caterpillar, and they may be glad to know that arrangements have now been made whereby the American preparation, known as Swift's arsenate paste, will be procurable from English dealers in insecticides. Those who make their own lead arsenate by mixing solutions of sodium arsenate and lead acetate may be reminded that the proper proportions are 3½ of acetate to every one of arsenate, if the latter be what is sold as "dry" or "crude" arsenate, or else, two of acetate to one of arsenate, if the latter is the crystallised or "pure" salt. Smaller proportions of lead acetate may result in serious scorching; larger proportions may cause some scorching, and must cause waste of money. For every 450 ounces of the wash, 1 oz. of the crystallised, or ½ oz. of the "dry" sodium arsenate, is the maximum proportion which should be used. The proportions in which the two substances should be mixed depends solely on the nature of the chemical reaction occurring, and this action has now been fully established (6th Woburn Report, 1906, and *Transac-*

tions Chemical Society, March, 1907): yet the Board of Agriculture continues to recommend in their leaflets (one of them just recently issued) proportions which have been proved to be incorrect, hurtful, and wasteful, which are opposed to those accepted everywhere else (even by their own chemical adviser), and of which they themselves can give no explanation. *Spencer Pickering.*

POLLINATION OF DAFFODILS.—All who have worked at crossing Narcissi must have noticed the very early maturity of the stigma, and found that in order to utilise it at its most receptive stage, the safest plan is to open the flower while still in bud. Working under glass early in the season I used to wonder why this was so, seeing that the anthers begin to shed their pollen almost immediately after the flower opens: in other words, the female stage of the flower adapted for cross-fertilisation seemed to last too short a time, self-fertilisation becoming imminent almost as soon as the perianth segments unfold. Later, when the same varieties of Daffodils such as Horsfieldii, Sir Watkin, and Barrii conspicuus were blooming out of doors in their own season, the secret was revealed. Every bud I opened at a certain stage in order to extract the stamens contained several tiny flies apparently very much at home and not anxious to escape. Not being a naturalist I cannot speak with authority about these flies or their habits, but it seems obvious that if they were first attracted to a wide open flower in its second flowering period when they would get dusted by the pollen, and then crept into the lightly-folded opening buds, where I found them, they would effect naturally and accidentally that cross-pollination which occurs naturally and which gardeners attempt with design. I found no flies in very young buds, nor in those opening a few weeks before their natural season under glass. J. Garner.

CYDONIA JAPONICA ROSEA.—Amongst these well-known members of the Pyrus genus, to some of which have been given the apposite name of "Fire-bush," none, so far as I have seen, give such a brilliant mass of bloom colour as this variety, judging from two plants of it growing against a low east wall at Hampton Court Palace. Visitors walking down the foot-path in the inner gardens leading to the vinery may have seen a mass of rich colouring that on reaching has proved to be produced by those two plants. Kept close to the wall by nailing and pruning, the mass of large Cherry-red flowers produced have been so great as to literally cover wood and leafage. Others in the same garden, white, red and pink, are pretty, but for the production of a wonderful mass of colour, these plants of the variety rosea are much the more effective. It is all the more remarkable, seeing that the plants get little sunshine after mid-day. D.

PHOTINIA SERRULATA.—No injury has occurred to the young growths of this shrub in these gardens, but scarcely any of the flowers have opened, for they were nipped by the frost. Our specimen is a very good one and measures 118 feet in circumference, and about 20 feet in height. It is growing in the open, but receives some protection on the north and east sides. Not only is the young foliage very pretty, but the old leaves often have a brilliant scarlet colouring before falling. We registered 15° and 16° of frost several times this winter. G. H. Head, Kingsdon, Taunton.

PLANTS SUITABLE FOR A DRY BANK.—A dry bank is not found in every garden, but those who possess one are often interested to know what may be grown upon it. In the late Sir Michael Foster's garden at Shelford a bank is furnished with some early spring flowers. Vinca minor first attracts attention, and in consequence of its dry position the stems are quite short and the flowers appear fully in view as if they were those of a Gentian. On the same bank near by Phlox subulata, often known as P. frondosa, is very charming. The best effect is obtained by Aubrietia in contrast with Alyssum saxatile. The purple of the former mingled with the gold of the latter makes a perfect combination of colours. Anemone Pulsatilla and its immediate allies are, of course, quite at home, and for numerous Irises of the bearded section this situation is perfectly suitable. The various kinds of Dianthus suggested here by a plant coming into flower must not be forgotten. R. Stewart Lynch.

PYRUS SORBUS.—With reference to the opinion expressed in an article in the *Gardeners' Chronicle* for April 13, where it is said (p. 238), "We doubt if the liquor so obtained would be very acceptable to anyone at the present day," you will be interested to know that here, in Anjou, we cultivate the Service tree, which grows wild in our forests, for the sake of its wood, which is used by turners and cabinet-makers, as well as for its fruit. We utilise the fruit in three ways: 1, from the juice of the fresh fruits extracted by the press we make excellent cider superior in taste and alcoholic strength to perry; unfortunately the juice is not abundant; 2, from fresh fruits put into a cask with water and allowed to ferment, we make a beverage much appreciated by the country folk, who contrive to make it keep a very long time, adding water from time to time above as they draw off the liquor below; 3, the fruits dried in an oven and stored dry are useful when fermented in water to make a palatable drink analogous to that made with dried Apples. *R. Chollet, Cheffes, Maine et Loire, France.*

PELARGONIUM SPORT.—I am sending two trusses of Pelargonium bloom. No. 1 is a sport from No. 2 and you will observe they are very distinct, the sport being a double and pale pink, similar to Madame Crousse, Ivy-leaf Pelargonium. I have five plants of the sport that I propagated and they are all coming true. The truss I am sending is the first truss fully out, but if you care for any more, when there are more out, I shall be pleased to forward them. *J. S., Liphook.* [The sport is a very interesting one, not only are the flowers doubled by the replacement of the stamens by petals, but they are perfectly regular in form and the petals are devoid of the dark blotch characteristic of the petals of a show Pelargonium. A botanist would say that the flowers were instances of "regular peloria" and "petalody of the stamens."—Ed.]

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

APRIL 16.—Present: Dr. M. T. Masters, F.R.S. (in the chair); Sir John Llewellyn, Bart., Messrs. Curtis, Hooper, Douglas, Cuthbertson, Drury, Elwes, Bennett-Poë, Bowles, Baker, Güssow, and Chittenden (hon. sec.).

Green wood.—Rev. W. WILKS exhibited a dead branch having the wood of a deep verdigris green colour. All the fallen branches in a certain wood in Sussex became of this green colour. Such wood is used in making "Tunbridge ware," and owes its colour to the presence of a fungus, *Chlorosplenium æruginosum*.

Plants exhibited.—A species of *Megaclinium*, with the curiously flattened rachis, was shown by J. B. H. GOODDEN, Esq., F.R.H.S., of Sherborne, Dorset; another Orchid, under the name of the "beetle" Orchid of Australia, with flowers curiously simulating a beetle with long antennæ, shown by Mrs. WHITLAW, of Amerden, Taplow, and an interesting bigeneric hybrid between *Diacrium bicornutum* and *Epidendrum Ellisi*, with flowers of a pinkish colour, shown by J. COLMAN, Esq., of Gatton Park. The terrestrial Orchid, *Satyrium coriifolium* (*Bot. Mag.*, tab. 2172), was shown by Messrs. WARE. It has a long spike of yellow flowers, having the labellum at the upper part of the flower, since the ovary is not twisted as in most Orchids. A vote of thanks was unanimously proffered to the exhibitors.

***Tchihatchewia isatidea* (Boiss).**—The Viscountess EMLYN, Frensham Hall, Haslemere, exhibited this very curious Cruciferous plant, a native of the mountains of Asia Minor, where it grows at an altitude of between 5,000 and 6,000 feet. The habit of the plant is exactly that of an *Echium*. A Botanical Certificate was unanimously awarded to the plant. (Figured in *Bot. Mag.*, tab. 7608).

New break in Auricula.—Mr. DOUGLAS showed an Alpine Auricula having golden stripes running through the edges of the petals. Mr. DOUGLAS stated that this was the first time he had seen this remarkable variation in colour.

African Crinums.—Mr. ELWES showed inflorescences of *Crinums*, one having white flowers with a very curious and somewhat un-

pleasant scent, which Mr. WORSLEY recognised as a form of *Crinum giganteum*; the other flowers had a pinkish tint, and the plant sold under the name of *C. Macowani*. Mr. WORSLEY regarded this as a form of *C. latifolium* from the most southern part of the range of that species.

Hybrid Japanese Plum and Peach.—Mr. LAXTON showed an interesting hybrid raised between the Japanese Plum ♀ and the Peach Sea Eagle ♂. The foliage of this hybrid is illustrated at fig. 131 in Rept. International Conference (1906) on "Genetics." This year the hybrid has flowered for the first time, the flowers being white with the faintest tinge of pink in the bud stage, the filaments of the stamens white and stouter than those of the Japanese Plum, the anthers well developed, and pollen apparently properly formed, the flower as large as that of the Peach. No pistil was present in any of the flowers shown, but a photograph showed the style and stigma developed in some of the flowers. No fruits have, however, been so far perfected, the ovary being frequently absent even when the style and stigma are present. (See *Gardeners' Chronicle*, April 20, p. 256, figs. 109, 110.)

Pruning and protection of Gooseberry bushes.—Mr. J. F. BAKER showed a branch, completely furnished with blossom throughout its entire length of over 3 feet, from a Gooseberry bush. It had been regularly summer pinched every June, but not otherwise pruned. Several snags left at the last pinching were still present, and at the base of each one or two blossoms showed that the pinching of the young shoot had induced fruit formation. Each autumn the bush had to be bound up with string, so that the branches were brought near together and kept as upright as possible to prevent disbudding by birds, which abound in the district. The string was removed each spring. He stated that as a result of his experiments, extending over several years, he had for the last two or three years adopted these methods extensively, very little trouble or expense being involved, and the results were excellent. A branch from a bush treated and left in the ordinary way, growing in the same plot, was also shown, and this was almost denuded of buds.

MIDLAND DAFFODIL.

APRIL 23 & 24.—The ninth annual exhibition of the Midland Daffodil Society was opened on Tuesday last in the Botanical Gardens, Edgbaston, Birmingham. It was larger than any of its predecessors, and the increase was almost entirely due to the greater number of competitive exhibits. The available space in the gardens for such exhibitions as this being somewhat restricted, a departure was made this season in respect to the Midland Auricula and Primula Society's show, which for several years past has been held on the same day as the Daffodil show. It was decided to postpone the Auricula show until May 1, but even when this had been done, it was exceedingly difficult to accommodate all the Daffodils and Tulips, &c., which filled the Exhibition Hall, the conservatory, and even part of the corridor leading from the entrance gates to the Water Lily house.

There are so many classes for seedlings and new varieties in the Midland schedule, that there are always numerous novelties exhibited at Birmingham. The non-competitive exhibits from Mr. ENGLEHEART, Mr. WILSON, and others were composed entirely of novelties, whilst in the competitive groups from Mr. CROSFIELD and Mr. WILLIAMS there were many new varieties of great merit.

Six Awards of Merit were awarded to new Daffodils, all of which are described below.

The display of honorary and competitive exhibits, consisting mainly of Narcissus, but including some Tulips, Cinerarias, Hippeastrums, rockwork, Alpine plants, &c., was very bright.

There were many visitors, and some exhibitors from the extreme south-west of England, Ireland, Wales, London, and the southern counties. Among the visitors were Sir Pieter Bam, Mr. C. du Chiappini (South African Exhibition), Miss Willmott, &c.

It was generally remarked that the Botanical Gardens were in excellent condition, and many congratulations were offered to Mr. Humphreys, the genial curator.

The "Barr" Cup was again won by the reputable amateur, Mr. R. C. CARTWRIGHT.

The Champion Medals offered by the Birmingham Botanical and Horticultural Society were not awarded at the time our report was written.

In the evening of the first day the exhibitors, judges, and visitors were entertained at dinner by Mr. Robert Sydenham at the Grand Hotel. The Rev. G. H. Engleheart read a short paper on "Notes and Notions About Daffodils."

MIXED DAFFODILS.

The first class was one for 50 varieties fairly representing the three types magni-coronati, medio-coronati, and parvi-coronati, and excluding Polyanthus Narcissus. The 1st prize was awarded to Mr. F. H. CHAPMAN, Rye; the winner last year was Mr. Crofield. Extraordinarily good culture was seen in the winning collection, every flower being finely developed, as was exemplified in the magnificent perianths of Barcarolle and many other varieties. Messrs. POPE & SON were 2nd, and Mr. R. C. CARTWRIGHT 3rd.

AJAX OR TRUMPET DAFFODILS.

The 1st prize in a class for nine distinct varieties of yellow, self-trumpet Daffodils was awarded to Messrs. POPE & SON, King's Norton. This firm staged the following varieties:—Olympic, Glory of Leiden, King's Norton, Quintus, Progress, Andronicus, Surprise, "A Mere Seedling," and Captain Nelson. Mr. R. C. CARTWRIGHT, King's Norton, who won the 2nd prize, had some excellent flowers of Glory of Leiden, Emperor, M. J. Berkeley, P. R. Barr, &c. 3rd, Mrs. F. M. WALTON, Handsworth.

A very pretty collection of bicolor trumpet Daffodils was shown by Messrs. POPE & SON in the class for nine varieties. The three "back-row" flowers were Horsfieldi, Madame de Graaff, and Grandee. In the centre row, Rembrandt, Mrs. Galton, and Glory of Noordwick found a place, and in the front were J. B. M. Camm, Mrs. Betteridge, and Mrs. Camm. A very pretty group from Mr. R. C. CARTWRIGHT obtained the 2nd prize, and Mrs. F. M. WALTON won the 3rd prize.

INCOMPARABILIS OR CUP DAFFODILS.

The next class was one for varieties of the medio-coronati type possessing yellow or sulphur-coloured perianths, and in this competition Mr. R. C. CARTWRIGHT beat Mrs. F. M. WALTON and Messrs. POPE & SON with the following varieties:—Sir Watkin, Princess May, Frank Miles, Conspicuous, Leonie, Glitter, Gloria Mundi, Beauty, and Gwyther; Mrs. F. M. WALTON was 2nd, and Messrs. POPE & SON 3rd.

A similar class for flowers having white perianths was represented by three exhibitors, and the winners of the 1st prize—Messrs. POPE & SON—staged the following varieties: White Lady, Will Scarlett (excellent flowers), Marina, Lady M. Boscawen, Rebecca, White Queen, Dorothy Yorke, Mabel Cowan, and Lucifer; Mr. R. C. CARTWRIGHT was 2nd, and Mrs. F. M. WALTON 3rd.

THE POET'S NARCISSUS.

The parvi-coronati section was shown in twelve varieties, and a very pretty collection from Mr. R. C. CARTWRIGHT obtained the 1st prize; his collection consisted of Saturn, Firebrand, Blood Orange, Robert Browning, Falstaff, Bullfinch, Dorothy, Ellen Barr, Jno. Bain, Agnes Barr, Baroness Heath and Vanessa. The highest colour was seen in the variety Firebrand. Messrs. POPE & SON won the 2nd prize.

The best collection of six varieties of the true poeticus type was shown by Mr. F. H. CHAPMAN, Bath, who had Barcarolle, Virgil, Horace, Cassandra, Homer, and White Elephant. All these varieties possess high merit, but some of them are nearly alike, as seen at an exhibition, although they may exhibit greater degree of distinctiveness in the garden. The Rev. J. JACOB, Whitchurch, was placed 2nd, and Mr. R. C. CARTWRIGHT 3rd, there being two other exhibitors in the same class.

INEXPENSIVE DAFFODILS.

When novelties can only be purchased at so many pounds per bulb, it is useful to know of other sterling varieties that are sold cheaply. The following classes were intended to indicate the best of these inexpensive Daffodils:—

Collection of Daffodils in twenty-five varieties, none of which shall cost more than ten shillings per bulb. There were six or more collections in

this class, and amid the keen competition Mr. H. B. YOUNG, Lincoln, won the 1st prize. The exhibit contained five excellent flowers of Glory of Leiden, which made a bold central feature, and Madame de Graaff, Emperor, and other trumpet flowers were around them, whilst the medio-coronati and parvi-coronati types were equally well represented. The varieties were as follow:—Empress, Barrii conspicuus, Emperor, Katherine Spurrel, Maximus, Stella Superba, Crown Prince, Lucifer, Minnie Hume, Glory of Leiden, Poeticus grandiflorus, Præcox, Frank Miles, Queen Sophia, Madame Plomp Branstons, Gloria Mundi, Madame de Graaff, C. J. Backhouse, Mrs. Ware, Ornatus, J. B. M. Camm, Lulworth, Mrs. Langtry, John Nelson, and Jno. Bain. Mr. W. A. WATTS, St. Asaph, was 2nd, and Mr. A. R. GOODWIN, Kidderminster, 3rd.

Six distinct varieties, costing not more than three shillings per dozen! Messrs. POPE & SON offered five prizes in this class. Mr. C. L. BRANSON, Coleshill, won the 1st prize with the varieties Victoria, Emperor, Flora Wilson, Horsfieldi, Stella superba, and Barrii conspicuus. There were many competitors.

SEEDLINGS AND NEW VARIETIES.

Group of twelve varieties of seedling Daffodils that have not been in commerce four years. Not fewer than two nor more than five stems of each variety could be shown. The first prize was awarded to Mr. E. M. CROSFIELD, Wrexham, for one of the best exhibits in the competitive classes. His flowers were as follow:—Banzai, a very large trumpet Daffodil with sulphur-coloured perianth and lemon-coloured, much frilled trumpet; White Slave, Fiona (self-coloured trumpet flower, sulphur, or very pale lemon); Compass (sulphured perianth and broad, much-flattened, deep orange-coloured crown); Countess of Stamford, a trumpet flower, almost white throughout, but with sulphur tint; Giraffe, with a light-yellow perianth, and rather short, much-spreading, buttercup-coloured trumpet; Fantasy, a nearly white trumpet flower with long, slender trumpet; Tartar (of poeticus type with excellent, flattened, deep orange-coloured crowns); Mrs. Ernest Crosfield, nearly white trumpet flower; Harmony, a large trumpet flower, in which the trumpet is of richest golden yellow, and the perianth pale sulphur; Circlet, sulphur-tinted perianth and lemon crown, with orange margin; and Iola, a pale sulphur-coloured trumpet flower; 2nd, Miss SPURRELL, Norwich; and 3rd, Messrs. POPE & SON. There were several other exhibits in the class.

Three distinct varieties (any section) not in commerce. Mr. P. D. WILLIAMS, St. Keverne, won the 1st prize, showing the varieties Comet, whitish perianth and fine, blood-orange chalice; Edgar, similar perianth, with yellow crown, having green eye; and Godoy, a variety with orange-coloured crown, having greenish centre. Of the five other exhibitors in the class the most successful were Messrs. POPE & SON.

Three distinct varieties of magni-coronati section, raised by exhibitor, and not in commerce. Mr. E. M. CROSFIELD, who was awarded the 1st prize, showed the following varieties:—Majestic, very large, having sulphur-coloured perianth and deeper-tinted trumpet, which is much frilled, very fine; Indamora, of nearly the same shades as Majestic; and Uncle Robert, an exceedingly large trumpet flower, in which the most prominent feature is the very large, widely-expanded trumpet. 2nd, Mr. J. MALLENDER, Worksop.

Three distinct varieties of medio-coronati. Mr. P. D. WILLIAMS, St. Keverne, won the 1st prize in this class, and showed "Seville" (Award of Merit), Water Lily, a very beautiful, pure white variety; and Hestia, a flower with very large, spreading perianth of a sulphur shade, and yellow chalice with greenish eye, and brilliant orange-coloured margin. 2nd, Mr. E. M. CROSFIELD, in whose exhibit the variety Comet was remarkable for its very deep orange-coloured crown.

Three distinct varieties of parvi-coronati seedlings. 1st, Mr. P. D. WILLIAMS, showing Aphrodite (Award of Merit); Hornet, a flower of excellent form, and having sulphured-shaded perianth, with the deepest orange-coloured crown, which is much flattened; and Poseidon, perianth nearly white, and the crown of greenish yellow, with orange-coloured ring. 2nd, Mr. E. M. CROSFIELD.

Awards of Merit.

Aphrodite.—A very large flower of the parvi-coronati type, possessing excellent form. Perianth pure white, with green base to the crown, and the frilled margin yellow. A very pretty flower. Shown by Mr. P. D. WILLIAMS.

Seville.—This variety belongs to the medio-coronati type. The flower possesses excellent form if the perianth is pressed flat, but at present it appears rather wavy and irregular. The magnificent "cup" is of the richest, orange-colour, and very spreading. The variety may prove to be a rare acquisition, and it certainly will, if greater substance and smoothness can be developed in the perianth. Shown by Mr. P. D. WILLIAMS.

Brilliantcy.—An extremely large flower of the medio-coronati group. Perianth of a rich yellow colour, exceedingly large; cup short and widely expanded, colour of cup yellow, with brilliant orange band. Shown by R. H. BATH, LTD.

Corallina.—An incomparabilis flower, with the palest sulphur-coloured perianth, and straight cup with notched margin free from frill, and self-coloured pale orange approximating to coral. The Award was probably given for the novel shade of colouring. Shown by Messrs. BARR & SONS.

Glitter.—A medio-coronati flower, perianth of a rich lemon shade, and the cup of reddish orange, becoming paler to yellow at base. A well-formed flower of moderate size. Shown by Mr. ROBT SYDENHAM.

Kestrel.—A very fine variety of the poeticus type. Perianth white, with well-developed, flattened crown of rich blood-orange colour. Shown by Mr. A. M. WILSON.

Caltha polypetala.—A strong-growing Caltha that was awarded an Award of Merit by the Royal Horticultural Society, April 17, 1906.

PREMIER BLOOMS.

Prizes were offered for the best single bloom of each of the following types. We append the names of the winning varieties:—Magni-coronati, yellow self trumpet, King Alfred; Magni-coronati, bicolor, cream, white, or any other type of trumpet Daffodil, Frost Bound; Medio-coronati, yellow or sulphur perianth only, Home Truth; Medio-coronati, white perianths only, Empire; Parvi-coronati, poeticus varieties excluded, Astræa; True poeticus type, Horace.

DAFFODILS AND TULIPS IN POTS.

Excellent cultivation was observed in some of the examples of Narcissus growing in pots, the variety Madame de Graaff forming the subject of frequent comment. Mr. W. H. PARTON and J. A. KENRICK, Esq., Harborne (gr. Mr. Usher), won the 1st prizes for Daffodils; and J. A. KENRICK, Esq., Mr. W. H. PARTON, Mr. R. C. CARTWRIGHT, and Mr. P. WILLIAMS won the 1st prizes for Tulips and Polyanthus, &c.

AMATEURS' CLASSES.

We may briefly allude to some of the classes exclusively reserved for amateurs. Mr. H. B. YOUNG won the 1st prize for six distinct varieties of the Medio-coronati type, with white perianths; and Mr. A. R. GOODWIN for varieties with yellow or sulphur-coloured perianths. The 1st prize for six varieties of Parvi-coronati (including Engleheartii type, but excluding true poeticus) was also won by Mr. YOUNG, who was followed by Mr. A. R. GOODWIN.

Mr. GOODWIN had an excellent exhibit of six varieties of the true poeticus type, showing Horace, Dante, Virgil, Herrick, Homer, and Laureate.

Mrs. GUMBLETON, Tewkesbury, won the 1st prize for three distinct varieties of double Daffodils; and J. A. KENRICK, Esq., the 1st prize for three varieties of Polyanthus Narcissus.

There were classes for exhibitors who had never won a 1st or 2nd prize at the Birmingham exhibition, and Mr. W. MARPLE, Penkridge; Mr. E. DEAKIN, Hay Mills; Mr. MILES JOHNSTON; and Mr. WALLACE DAVIES won 1st prizes.

DECORATIVE CLASSES.

The principal decorative class was one for a group of cut, hardy, spring flowers, arranged on a round table 2½ feet in diameter, suitable for the drawing-room. There were six tables so arranged, and the 1st prize was given to an exhibit of Muscari and Lily of the Valley flowers arranged in silvered rustic stands over a blue cloth. The

award was criticised from the point of view that the effect of the cloth detracted from the flowers. This may have been so, but the cloth so perfectly toned with the flowers that the whole, judged as a "blue" floral ornament, was agreeable to the eye, if not in accordance with the general practice of using a neutral ground, or one calculated to "throw up" the colour of the flowers. This exhibit was shown by Mr. S. S. JONES, Pries; Messrs. POPE & SON obtained the 2nd prize for a neat arrangement of Narcissus incomparabilis varieties which, in the opinion of some, should have been placed 1st. There were several other classes for vases, bowls, and epergnes of Narcissus flowers, and in most of them there was much competition for the awards.

HONORARY EXHIBITS.

These were numerous, and whilst most of them were composed of, or contained Narcissus, others were of different character.

The only Gold Medal was one awarded to the Rev. GEO. ENGLEHEART, Dinton, near Salisbury, for a collection of seedlings under numbers, and therefore of little value for descriptive purposes. Mr. ENGLEHEART's exhibits nowadays are not confined to the poeticus type, but incomparabilis and trumpet Daffodils are seen amongst his novelties, as well as varieties obtained partly from the pretty little N. triandrus.

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., made a most extensive exhibit of Narcissus flowers, which was rich in novelties of the highest merit. Some of the firm's newest seedlings were exhibited under numbers, reference to them individually would, therefore, be of little value. With these were some superb flowers of Weardale Perfection, Lord Roberts, George Philip Haydon, Peter Barr, Cygnet, Chancellor, Royal Star, Scarlet Herald, with sulphur-yellow perianth and brilliant orange-coloured, flattened crown, White Virgin, &c. (Silver-Gilt Medal.)

Miss F. W. CURREY, The Warren Gardens, Lismore, Ireland, had a capital exhibit of Daffodils, the flowers being remarkable for excellent form and brilliant colouring. Lady of the Snows, Madame de Graaff, King Alfred, Child of the Mist, Cygnet, and Avalanche were unsurpassed amongst the trumpet varieties, and Joan of Arc, Beacon, and Lucifer were prominent amongst the incomparabilis. (Silver-Gilt Medal.)

From the LISSADELL BULB FARM (Sir J. Gore-Booth), Ireland, was sent a collection of Narcissus blooms exhibiting superb cultivation, especially in the case of Madame de Graaff, which was unusually good, the flowers possessing rare size and substance. The large trumpet variety Glory of Leiden, amongst a large number of varieties, was excellent. (Large Silver Medal.)

Mr. A. M. WILSON, East Keal, exhibited some seedlings, one of which is described under "Awards of Merit." Orangeman, with fine, orange-coloured trumpet and pale sulphur perianth; Greeneye, with sulphur-coloured perianth and yellow cup possessing a green "eye"; Homespun, Stonechat, &c., were of much merit. (Large Silver Medal.)

Mr. R. H. BATH, LTD., The Floral Farms, Wisbech, made an extensive exhibit of Narcissus, in which the various types of the flower were well represented. Amongst the large trumpet flowers were such varieties as Weardale, Perfection, Glory of Leiden, King's Norton, Snow Queen, Madame de Graaff, Madame Plomp, and King Alfred. Of the parvi-coronati section, some of the more prominent were Præcox grandiflorus, Baroness Heath, Nelsoni aurantius, C. J. Backhouse, Beauty, Lucifer, Barrii conspicuus, Gloria Mundi, &c. (Large Silver Medal.)

Messrs. W. H. SIMPSON & SONS, Birmingham, had a group of Daffodils, in which Madame de Graaff formed a good central feature, and the rest of the flowers were relieved with some pots of Narcissus placed at intervals amongst them. (Large Silver Medal.)

Messrs. HOGG & ROBERTSON, 22, Mary Street, Dublin, showed a very admirable display of Narcissi, which was particularly noticeable for careful selection in the flowers and neat, effective staging. Excellent cultivation was evident in this exhibit, the numerous varieties being quite up to the best standard. A group of Tulip flowers was just as remarkable for a very large flower of the brilliant, scarlet species T. Eichleri,

the segments of which were 5 inches in length; the new *T. Fosteriana*, scarlet, with yellow base; and a number of good varieties were included in the exhibit. (Large Silver Medal.)

Messrs. DICKSON'S, LTD., Chester, had a group of *Narcissus* flowers, including many varieties, amongst which the well-known white *incomparabilis* Elaine was pretty. *N. poeticus præcox* was shown well. (Small Silver Medal.)

Messrs. GILBERT & SON, Anemone Nurseries, Dyke, Bourne, Lincolnshire, showed flowers of their brilliantly-coloured *Anemones*, and, in addition a collection of *Daffodil* flowers, *Fritillarias*, &c. (Silver Medal.)

The Rev. G. P. HAYDON, Westbere, Canterbury, showed some seedling *Daffodils* with extraordinary names, amongst which were Bull Pup, Giraffe, The Secretary, Lacquer Ware, &c.

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, exhibited a collection of *Narcissus*, *Tulips*, *Irises*, *Fritillarias*, *Lily of the Valley*, &c., growing in moss-fibre in glazed green vases, without means of drainage. (Silver Medal.)

Mr. S. MORTIMER, Rowledge Nurseries, Farnham, Surrey, had a dozen or more large trumpet-shaped glasses furnished with excellent winter-flowering or tree *Carnations*, the varieties being similar to those usually seen at the London shows. In addition, Mr. MORTIMER exhibited flowers of a good double white *Stock*, named "All the Year Round." (Silver-Gilt Medal.)

Messrs. "BAKERS," Wolverhampton and Codrall, had natural rockwork arranged as a bank on a table and sloping to the wall. The effect was very pleasing. The projections, and more exposed positions were planted with species of *Saxifraga*, *Aubrietia*, *Hutchinsia alpina*, *Sempervivum*, &c., and the sheltered depressions with varieties of *Primula Sieboldii*, *P. nivalis*, *Cypripedium nivale*, *Iris pumila*, *Lithospermum prostratum*, &c., whilst *Acers* and some other dwarf-growing shrubs and *Dicentra* (*Die-litra*) *spectabilis* were at the top of the Rockery. (Silver-Gilt Medal.)

Messrs. GUNN & SONS, Olton, Birmingham, exhibited rockwork planted with species of flowering plants. The employment of numerous *Violas* had the result of making the exhibit very gay. (Large Silver Medal.)

Messrs. DOBBIE & Co., Rothesay, had a gay exhibit of *Anemone* flowers in great variety, and a collection of varieties of *Viola*. (Silver Medal.)

Messrs. KER & SONS, Aigburth Nursery, Liverpool, staged a grand group of *Hippeastrums*, many of the varieties being of exceptional merit, but particularly that known as *Rose Madder* of the new tint that was so greatly admired in Messrs. KER's exhibit at the Temple Show last season. (Large Silver Medal.)

Messrs. SUTTON & SONS, Reading, showed a large group of *Cinerarias* in pots; the varieties being of shades of pink and blue. The same firm had some plants of a single *Ranunculus* with brilliant crimson flowers. (Large Silver Medal.)

Messrs. WALLACE & Co., Kilnfield Nurseries, Colchester, showed an exhibit containing selected varieties of *Narcissus* and *Tulips*. In addition were a few hardy flowers of a miscellaneous character. (Silver Medal.)

The Misses HOPKINS, Barming, Maidstone, showed some coloured *Primroses* and other species of *Primula*.

Messrs. FELTON & SONS, Florists, Hanover Square, London, exhibited good arrangements of cut flowers. (Silver-Gilt Medal.)

HUNTS DAFFODIL SPRING FLOWER.

APRIL 18.—The second show of the above-named society was held on this date. Principal prize-winners were Lady LILFORD (winner of the Silver Vase offered by Messrs. Barr and Sons), H. R. DARLINGTON, Esq., Mrs. NOWELL USTICKE, Hon. Mrs. DUBERLY, Sir CHARLES HAMILTON (president), and the popular secretary, Miss L. L. LINTON. The attendance was much larger than that of last year. Honorary exhibits were staged by Messrs. BARR & SONS, King Street, Covent Garden; Messrs. R. H. BATH, LTD., Wisbech; Messrs. W. and J. BROWN, Peterboro'; Messrs. J. E. PERKINS, Huntingdon; Messrs. LAXTON, of Bedford; Mr. ROBERT SYDENHAM, Birmingham. Lady DE RAMSEY's exhibit of *Carnations* also came in for much admiration. The Right Hon. the Earl of SANDWICH sent an exhibit of star *Cinerarias*, *Azaleas*, *Dracænas*, *Caladiums*, &c., which were tastefully displayed.

ROYAL BOTANIC.

APRIL 24.—The exhibition of the above Society held on this date was favoured with splendid weather, and a very pretty show was attended by many visitors. The great conservatory was brilliant with groups of *Roses*, forced shrubs, *Cinerarias*, and *Zonal Pelargoniums*, in addition to the usual occupants, and the corridor was entirely filled with exhibits of seasonable flowers.

The *Roses* and flowering shrubs were staged by Messrs. W. PAUL & SON, Waltham Cross, Herts, and they made quite a bank of flowers. The *Roses* were principally pillar varieties, the White Waltham Bride being shown in excellent condition, with *Wedding Bells*, whose pale rose semi-double flowers hung in clusters; the bronze *Crepuscle*; *Nymph*, a charming single variety, with creamy white petals; *Kathleen*, another single, and a new one named *Tausendschön*, to which a certificate was awarded. The flowers are large, and are disposed in big clusters; their colour is pale rose, but in the opening buds the shade is richer and deeper. The shrubs included *Cherries*, *Peaches*, *Apples*, *Cydonia japonica*, *Choysia ternata*, &c. (Gold Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, had large bunches of brilliant *Zonal Pelargoniums*, with star *Cinerarias* at the back, and interspersed with plants of *Grevillea robusta*. The following is a list of some of the choicer varieties of *Pelargoniums* with their colours: *Queenswood*, delicate salmon; *Kingswood*, flame scarlet, the top petal is white at its base; *Lilacina Improved*, purple-pink, the pips are exceptionally large; and *Frogmore*, the largest of the magenta-coloured varieties, with a scarlet marking in the posterior petal. (Silver-Gilt Medal.)

EDWARD WAGG, Esq., The Islet, Maidenhead (gr. Mr. D. Phillips), was awarded a Gold Medal for a fine display of *Cinerarias*, including both the florists' and the lax-flowered type.

Lady TRESS BARRY, St. Leonard's Hill, Windsor, Berks, exhibited a very large number of *Camellias* from the open. The collection was very representative, and several seedlings were included, notably a single of dark-red colour named *Sir F. T. Barry*, and to this a Certificate of Merit was awarded. (Gold Medal.)

Messrs. H. B. MAY & SONS, Dyson's Lane Nurseries, Upper Edmonton, staged a group of hardy and another of exotic Ferns, some very large *Pansies*, dwarf *Roses*, *Statice profusa*, and a hybrid *Pelargonium* named *Millfield Gem*. (Silver-Gilt Medal.)

Mr. JAMES DOUGLAS, Edenside, Great Bookham, showed a fine batch of *Auriculas*—principally Alpine varieties. New varieties of merit were *May Day*, a yellow fancy after *Daffodil*, only paler: the form and size are both good: it is a little lacking perhaps in the best type of paste; *Mikado*, a very dark crimson-maroon self, with a dense paste set in an even ring; and *Argus*, having petals edged with vinous red, merging into a darker Plum colour and with a white centre. Each of the foregoing plants received the Society's Certificate of Merit. (Silver-Gilt Medal.)

H. R. DARLINGTON, Esq., Park House, Potter's Bar (gr. Mr. D. Bignell), showed 71 varieties of *Daffodils*, including examples of most of the sections, all in the best condition, and to which was awarded the Cup offered by Messrs. Barr for the best display of these flowers in the show.

Messrs. HOGG & ROBERTSON, 22, Mary Street, Dublin, showed a fine display of *Daffodils*, amongst which we noticed *Countess Cadogan*, with a white trumpet; *Mona*, a fine *Poet's Daffodil*; *Lady Arnott*; and Mrs. C. R. Hamilton, of the *incomparabilis* section, and with a rich open cup. *Tulips* and a few hardy flowers were also displayed by the same firm. (Gold Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, W.C., had vases of choice *Daffodils*, all in the best condition, a selection of *Tulips*, and seasonable hardy flowers. *Narcissus Cygnet* was selected for Award; it has a refined canary-yellow-coloured trumpet set in a perianth of creamy-white. (Gold Medal.)

Messrs. THOS. S. WARE, LTD., Feltham, Middlesex, showed Alpine and hardy flowers, tree *Pæonies*, and *Carnations*. (Silver-Gilt Medal.)

Messrs. JOHN PEED & SON, West Norwood,

London, had a display of Alpine plants, bulbous flowers, *Clematis*, *Pansies*, and a batch of hardy succulent plants. (Silver Medal.)

The SOCIETY exhibited *Streptocarpus grandis* in flower. Only one very large ovate leaf is developed, and this is addressed. One plant bore six flowering spikes, which were curiously developed one behind the other in the same plane. The lax cymose inflorescence has small pale lavender flowers.

LINNEAN SOCIETY.

APRIL 18.—Dr. A. Smith Woodward, F.R.S., vice-president, in the chair. Mr. James Saunders, A.L.S., showed a series of lantern-slides of "Witches' Brooms," which are usually caused by one of three agents, parasitic fungi (*Æcidium* and *Exoascus*), parasitic insects and gnarling. The illustrations shown were of trees affected by parasitic fungi, the mycelium of which permeates the woody tissue of the diseased plants. They included Silver Fir, Norway Spruce, Common Elm, Hazel, Hornbeam, Birch, Elder, Hawthorn, and Wild Cherry (*Prunus avium*). The Silver Fir was from Norfolk, but all the others from South Bedfordshire and North Hertfordshire.

The first paper was by Mr. J. C. Shenstone, F.L.S., "On the Ecological Functions of Stolons and Cleistogamous Flowers." He pointed out the advantages to the plants by the colony-forming habit such as its more certain pollination, and greater power of holding its own against competitors, instancing as examples *Bellis perennis*, *Thymus Serpyllum*, and *Mercurialis perennis*. Further examples were dwelt upon in the cases of *Urtica dioica*, *Adoxa Moschatellina*, and the *Viola odorata* and *V. canina*, where both stolons and cleistogamous flowers co-operate in keeping the colonies compact.

Mr. A. O. Walker, F.L.S., then introduced the subject, "The Conservation of existing Species by Constitutional or Physiological Variation giving greater power of adaptation without perceptible change of structure." The author referred to a supposed case of two healthy men going to an unhealthy climate: one proving immune to the local diseases might conceivably transmit that quality to his children; the other, falling a victim to the climate, would leave no descendants. In the case of plants he brought forward the case of *Crepis taraxacifolia*, long known in Wales as a rarity, which in 1896 onwards became extremely abundant at Colwyn Bay. He considered that this might be accounted for by the introduction of a different variety, morphologically identical, yet physiologically distinct, which, by its ability to adapt itself to its surroundings, had rapidly extended its area of growth. Another case was of *Cardamine pratensis*, usually stated to grow in moist meadows, which is accurate as regards North Wales, but in Kent, its favourite habitat is coppice woods, the second year after cutting the undergrowth. It is frequent on dry banks, on masses of rocks, of trees or shrubs, probably as xerophilous as a station as could be imagined. *Parnassia palustris* may also be found in exceptionally dry places.

Mr. Hugh Scott gave the substance of his paper, which was communicated by Mr. J. J. Lister, F.R.S., F.L.S., "On an Aberrant Coccid."

The last paper was by Prof. W. B. Bottomley "On some Results of Inoculation of Leguminous Plants." After briefly adverting to the known facts of nitrogenic bacteria in root-nodules, the author stated the results of some experiments made last year at the College Farm, Kilmarnock, on *Lucerne* (*Medicago sativa*), which induced him to repeat the experiments in his own laboratory. In May, 1906, experiments were begun; Tares (*Vicia sativa*) were chosen and inoculated seeds set in sterilised sand, to which the requisite potash and phosphate salts had been added. A second set of pots was prepared with untreated seed, but besides the potash and phosphate, nitrate of soda proportionate to 2 cwt. per acre was added. In the last week of July the results were tested and found to be:—Tares, with nitrate of soda, yielded 1.92 per cent. nitrogen; Tares, inoculated, yielded 3.07 per cent. nitrogen; showing that the latter contained over 50 per cent. more nitrogen than those grown with nitrate of

soda, the food value being correspondingly increased. Specimens of field crops were obtained from Scotland to check these results, in September, and the three experimental plots proved:—Section A: No nitrogenous manure, 3.41 per cent. nitrogen; Section B: Nitrate of soda, 3.75 per cent. nitrogen; Section C: Inoculated, 4.04 per cent. nitrogen. Here the differences are less, due to the fact that farm soil invariably contained a certain number of the nitrogenous bacteria, which accounted for these results. Section B showed a yield of 9 tons 8 cwt. per acre, and Section C (inoculated) showed 12 tons 5 cwt. of fodder.

ORCHID SALES—WESTFIELD DUPLICATES.

The sale of duplicate Orchids from the Westfield collection of FRANCIS WELLESLEY, Esq., at Messrs. Protheroe and Morris' Rooms, Cheap-side, on Tuesday and Wednesday, April 23 and 24, notwithstanding the number of similar events this season, proved satisfactory, the 570 lots realising £1,800. The plants were mostly good specimens, and all were in excellent condition. The white Cattleyas sold well, a small healthy plant of *C. labiata* "The Empress" realising 55 guineas; *C. Mossiae* Arnoldiana 20 and 16 guineas; *C. labiata* alba "Louise" 36 guineas, *C. Mossiae* "Gloire de la France" 21 and 17 guineas, *C. Mossiae* alba "Miss E. Harting" 40 guineas, *C. Mendelli* "Mrs. Frederick Knollys" 21 guineas, and other recognised good forms, both albinos and coloured, fetched good prices throughout. As at the sale last year, *Cypripedium Thalia* "Mrs. Francis Wellesley" (a small healthy plant) reached the highest price, 120 guineas; *C. Mrs. Wm. Mostyn*, Westfield variety, fetched 27 guineas; *C. "King Edward VII."* 16 and 14 guineas, and all others went well. *Lælio-Cattleyas* and *Cattleyas* of the older kinds sold well, and although it might be said to be a buyers' sale, by reason of being without reserve, it still showed the healthy tone of the market.

DEBATING SOCIETIES.

CROYDON & DISTRICT HORTICULTURAL.—The title of a paper read before the members of this society on Tuesday, the 16th inst., by Mr. J. C. Lewis, Reydon Mount Gardens, Croydon. The lecturer gave details of work in the pleasure grounds in each month. Beginning with October, which may be described as the commencement of the gardener's year, he detailed operations as each season comes round, so that at the end of September the cycle of work in the outside garden was completed.

READING AND DISTRICT GARDENERS'.—There was a very large attendance of members at the last meeting of this association, which was held in the Abbey Hall, and presided over by Mr. W. Turnham. The committee had arranged some interesting competitions, and these proved a great success. The first contest was the making of a gentleman's buttonhole and a lady's spray. Head gardeners and foremen were debarred from competing, but the second competition was open to all, and was for five small vases arranged for effect and suitable for a breakfast table. Mr. W. H. Watson was successful in both classes. A magnificent display of cut flowers was made by the members, and next morning the flowers were conveyed to the Royal Berkshire Hospital. In addition a collection was taken at the meeting in aid of the funds of this hospital, and a sum of about 60s. was realised.

THE WEATHER.

THE WEATHER IN WEST HERTS.

Week ending April 24.

A long continued rainfall. The first four days of the week were cold, but since then the weather has been getting warmer. To-day the maximum reading in the thermometer screen was 70°, which is the highest as yet recorded here this year. On the other hand, on the three cold nights the exposed thermometer registered from 9° to 11° of frost. The ground is now becoming warm again, being at about an average temperature at 3 feet deep, and 8° warmer than is seasonable at 1 foot deep. Rain fell on two days to the total depth of over half an inch. This was really one continuous fall, for the rain began at 8 p.m. on the 20th and continued with only four hours intermission until 8 p.m. on the 21st, or for 34 consecutive hours. This fall re-started both the percolation gauges, but the amounts now passing through them are very small. The sun shone on an average for 5½ hours a day, or for a quarter of an hour a day longer than is usual at this season. Calms prevailed in the early part of the week, but since then the wind has been moderately high. The mean amount of moisture in the air at 3 p.m. was 1 per cent. in excess of a seasonable quantity for that hour. In my last report the date of the first swallow was given as April 18, whereas it should have been April 12. E. M., Berkhamsted, April 24, 1907.

MARKETS.

COVENT GARDEN, April 24.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Ed.]

Cut Flowers, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Azalea Fielderi, per dozen bunches	2 6-40		Marguerites, yellow, doz. bhs.	2 0-2 6	
— mollis, p. bch.	0 9-10		Mignonette, per doz. bunches	3 0-40	
Anemones, per doz. bunches	3 0-40		Myosotis, per doz. bunches	3 0-40	
Bouvardia, per doz. bunches	4 0-60		Narcissus, per doz. bunches	1 0-20	
Calla æthiopica, p. dozen	2 0-30		— poeticus, per dozen bunches	2 0-30	
Camellias, white, per dozen	1 6-20		Odontoglossum crispum, per dozen bunches	2 6-30	
Carnations, per dozen blooms, best American various	2 6-50		Pancratium, dr. fls.	3 0-40	
— smaller, per doz. bunches	12 0-18 0		Pelargonium, show, doz. bhs.	6 0-90	
Cattleyas, per doz. blooms	10 0-12 0		— Zonal, double scarlet	4 0-60	
Daffodils, doz. bhs.	1 0-2 6		Primula (double white), doz. bhs.	6 0-90	
Dendrobium, per doz. blooms	2 0-30		Ranunculus, per dozen bunches	6 0-90	
Eucharis grandiflora, p. doz. bhs.	2 6-40		Roses, 12 blooms, Niphetos	1 0-30	
Gardenias, per doz. blooms	1 0-20		— Bridesmaid	3 0-30	
Gladiolus, The Bride, p. bunch	1 0-13		— C. Testout	2 0-30	
Gypsophila elegans, p. doz. bunches	4 0-60		— General Jacqueminot	1 0-20	
Heather, white, pr. doz. bunches	3 0-60		— Maréchal Niel	1 6-30	
Hyacinth, per doz. bunches	3 0-50		— Kaiserin Victoria	1 6-30	
Iris, German, per doz. bunches	9 0-12 0		— Mrs. J. Laing	2 0-40	
— Spanish, per bunch	0 8-10		— C. Mermet	2 0-40	
Lilac, white, p. bch.	3 6-40		— Liberty	2 0-40	
Lilium auratum	2 0-30		— Mad. Chénay	2 0-30	
— candidum, per bunch	1 0-20		Stephanotis, per dozen trusses	4 0-60	
— lancifolium, rubrum and album	2 0-2 6		Stocks, per dozen bunches	3 0-40	
— longiflorum	3 0-40		Sweet Peas, p. doz. bunches	3 0-40	
Lily of the Valley, p. doz. bunches	6 0-90		Tuberose, per doz. blooms	0 4-0 6	
— extra quality	10 0-15 0		Tulips, per dozen bunches	5 0-80	
Marguerites, white, p. doz. bunches	2 0-30		— Special varieties	12 0-18 0	
			Violets, doz. bhs.	1 6-30	
			— Parma, p. bch.	2 0-40	
			Wallflowers, per dozen bunches	2 0-30	

Cut Foliage, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantum cuneatum, per dozen bunches	4 0-60		Galax leaves, per dozen bunches	2 0-2 6	
Asparagus plumosus, long trails, per doz.	6 0-90		Hardy foliage (various), per dozen bunches	3 0-90	
— medium, bunch	1 6-20		Ivy-leaves, bronze	2 0-2 6	
— Sprengeri	0 6-10		— long trails per bundle	1 6-30	
Berberis, per doz. bunches	2 0-2 6		— short green, doz. bunches	2 0-30	
Croton leaves, bch.	1 0-1 6		Moss, per gross	4 0-50	
Cycas leaves, each Fern, English, per dozen bunches	1 6-20		Myrtle (English), small-leaved, doz. bunches	4 0-60	
— French, dozen bunches	2 0-30		— French, dozen bunches	1 0-1 6	
			Smilax, p. doz. trails	2 0-30	

Plants in Pots, &c.: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Acacias, per dozen	18 0-30 0		Cyclamen, per doz.	9 0-12 0	
Ampelopsis Veitchii, per dozen	6 0-80		Cyperus alternifolius, dozen	4 0-50	
Aralia Sieboldi, dz.	4 0-60		Cyperus laxus, doz.	4 0-50	
— larger	9 0-12 0		L'afodils, per doz.	4 0-80	
Araucaria excelsa, per dozen	12 0-30 0		Dracænas, per doz.	9 0-24 0	
Aspidistras, green, per dozen	18 0-30 0		Erica Cavendishii, per dozen	24 0-36 0	
— variegated, dz.	30 0-42 0		— candidissima	18 0-24 0	
Asparagus plumosus nanus, doz.	9 0-12 0		— Wilmoreana, per dozen	12 0-18 0	
— Sprengeri, doz.	9 0-12 0		— persulata alba	24 0-30 0	
— tenuissimus, per dozen	9 0-12 0		Ruonymus, per doz.	4 0-90	
Azaleas (India vars.), per doz.	24 0-36 0		Ferns, in thumbs, per 100	7 0-10 0	
— mollis, each	3 6-10 6		— in small and large 60's	16 0-25 0	
Begonia Gloire de Lorraine, p. dz.	12 0-18 0		— in 48's, per dz.	4 0-10 0	
— Turnford Hall, per dozen	12 0-18 0		— in 24's, per dz.	10 0-18 0	
Boronia megastigma, per doz.	12 0-30 0		Ficus elastica, doz.	9 0-12 0	
— heterophylla	12 0-24 0		— repens, per doz.	4 0-60	
Calceolarias, herbaceous, p. dz.	5 0-80		Genistas, per doz.	6 0-90	
Callas, per doz.	9 0-12 0		Heliotropiums, per doz.	5 0-80	
Clematis, per doz.	5 0-90		Hydrangea Thos. Hogg, per doz.	12 0-18 0	
Clematis, per doz. in flower	12 0-18 0		— Hortensia, per doz.	8 0-12 0	
Cocos Weddelliana, per dozen	9 0-18 0		Kentia Belmoreana, per dozen	12 0-18 0	
Crotons, per dozen	12 0-30 0		— Fosteriana, dz.	12 0-21 0	
			Latania borbonica, per dozen	12 0-18 0	
			Lilacs, each	2 0-50	

Plants in Pots, &c.: Average Wholesale Prices (Contd.)

	s.d.	s.d.		s.d.	s.d.
Lilium longiflorum, per dz.	12 0-24 0		Pelargoniums, Zonalis, per dz.	6 0-80	
— lancifolium, per dozen	12 0-18 0		— show	12 0-15 0	
Lily of the Valley, per dozen	18 0-30 0		Primulas, per doz.	3 0-40	
Marguerites, white, per dozen	6 0-90		Rhodanthe, per dz.	4 0-60	
Mignonette, p. doz.	5 0-80		Rhododendrons, per doz.	24 0-36 0	
Orange trees in fruit, each	3 6-50		Roses, H.P.s., per doz.	12 0-24 0	
Pelargonium, Ivy-leave d, Mds. Crousse and Galilee, per dozen	6 0-80		— Ramblers, each	5 0-21 0	
			Selaginella, dozen	4 0-60	
			Spiræa japonica, per dozen	5 0-80	
			Stocks (intermediate) per doz.	6 0-80	

Fruit: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples, per box, Tasmanian	11 0-12 0		Grapes, Almerias, per dozen lbs.	12 0—	
— Ribston	11 0-12 0		— English Muscats, per lb.	6 0-10 0	
— Scarlet Nonpareils	11 0-12 6		— Belgian Hambro, per lb.	2 6-30	
— Cox's Orange Pippins	18 0-18 6		Lemons		
— Alexandras	9 0-9 6		— Messina, case	80 0-140	
— Prince Alfreds	11 0-13 0		— Naples, p. case	20 0-28 0	
— Alfretons	10 6-11 6		Lyches, per box	1 0-1 2	
— Australian, box	19 0-12 6		Melons (Guernsey), each	2 0-40	
— Roman Beauty	19 0-12 6		Nuts, Cobnuts, per doz. lb.	4 0-4 6	
— Cleopatra	18 0-16 0		— Almonds, bags	54 0—	
— Jonathans	19 0-14 6		— Brazil, new, per cwt.	40 0-42 6	
— Ribstons	19 0-13 6		— Barcelonas, per bag	38 6—	
— New York Pippins	18 0-16 0		— Cocos nuts, 100	12 0-17 0	
— Five Crowns	10 6-12 6		Oranges, per case		
— Cox's Orange Pippins	12 0-14 0		— Palermo, 100's, box	6 0-80	
— Canadian, per barrel			— Valencia	10 0-40 0	
— Russets	25 0-26 0		— Navels	11 0-16 0	
— Greenings	25 0-27 0		— Jaffa	12 0-14 0	
— Ben Davis	17 0-18 0		— Seville Bitters, 200's, boxes	5 0-5 6	
— Baldwins	22 0-26 0		— Palermo's, boxes	6 0-80	
Bananas, bunch:			— Bloods, 100's, boxes	6 0-80	
— West Indian, red	8 0-10 0		— Murcia's, box	8 6-13 0	
— No. 2 Canary	5 0-6 6		Pears (Californian), per case	10 0-12 0	
— No. 1	6 0-7 0		— Cape, small boxes	4 0-8 0	
— Extra	7 6-9 0		— Cape, large boxes	12 0—	
— Giants	8 0-12 0		— Australian, pr. bdl. of 8 boxes	9 0-14 0	
— Jamaica	4 6-60		Peaches (English), per dozen	21 0-30 0	
— Loose, per dz.	0 8-1 3		Pineapples, each	2 6-40	
Cranberries, p. case	8 0-8 6		Strawberries (English), per	2 0-40	
Dates (Tunis), doz. boxes	4 0—				
Figs, Guernsey, dz.	6 0-15 0				
Grape Fruit, case	11 6-13 6				
Grapes (Cape), box	6 0-15 0				
— small boxes	4 0-80				
— large boxes	10 0-14 0				
— "Black"	10 0-14 0				
— English, Hambro's, per lb.	3 6-50				

Vegetables: Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes (French), per dozen	2 0-2 6		Mushrooms, button, per lb.	0 10—	
— English, ¼ bush.	0 9-10		Mustard and Cress, per dozen pun.	1 0-1 6	
— bags	3 6—		Onions (Valencia), case	4 6-50	
Asparagus, Sprue French, bundle	0 7-0 8		— pickling, per bushel	2 0-2 6	
— Toulouse, bdl.	2 6-30		— Spring, pr. dz. bunches	1 6—	
— Montauban, bdl.	5 6-5 6		— Egyptian, bag	5 0-5 6	
— Barcelona, per bundle	0 10-10		— French, ¼ bag	2 6—	
— Spanish, bdl.	1 8-1 6		— English, bag	4 6—	
— French Giant, per bundle	17 6—		Peas (French), per packet	0 4—	
— Par's Green, bundle	4 0-4 8		— French, per pad	6 0-10 0	
Beans, Jersey, p. lb.	0 8-0 9		— English, pr. lb.	1 0-1 2	
— Haricots, pr. bx.	1 0—		Parsley, 12 bunches	2 6-30	
— Broad (French) pad	4 6-50		— ¼ bushel	1 6-2 6	
— Home-grown, per lb.	0 8-0 9		Parsnips, per bush.	1 8—	
Beetroot, bushel	10—		— per bag	2 6—	
Broccoli, sprouting, bag	1 6—		Potatoes (French), boxes, per lb.	0 2½—	
Cabbage Greens, bags	1 6-20		— Jersey, per lb.	0 4-0 5	
— red, per dozen	2 0—		— Canary, cwt.	10 0-13 6	
Carrots, French pad	2 0-2 6		— Algerian, barrels, per cwt.	17 0-23 0	
— French, new, per bunch	0 6-0 7		Radishes (French), per dozen	0 9-10	
— per bag, unwashed	2 0—		— Guernsey, per dozen	0 4-0 6	
— washed	2 6—		Rhubarb (English), forced, pr. dz.	0 10-10	
Cauliflowers, p. tally	4 0-7 6		— natural, p. dz.	1 6-1 9	
— per dozen	1 0-1 6		Salsify, per dozen bundles	3 6—	
Celeriac, per doz.	2 0-2 6		Savoy, per mat (holding about 80 to 400)	2 0-2 6	
Celery, p. dz. bdl.	6 0-10 0		Seakale, doz. pts.	8 0-10 0	
Chicory, per lb.	0 2½-0 3		Spinach, English, per bushel	2 0-2 6	
Chow Chow (Section) hium eudle d.	3 0—		Tomatoes:—		
Cucumbers, p. doz.	2 6-3 6		— Canary, p. bndle	9 0-22 0	
Endive, per dozen	1 6-2 6		— English, per dozen lbs.	12 0—	
Horseradish, foreign, p. doz. bdl.	12 0-18 0		— Turnips, bags	3 0—	
Leeks, 12 bunches	1 6—		— French, bchs., new, per bunch	0 8-0 9	
Lettuces (French), per dozen	0 10-10		— washed, cwt.	3 6—	
— French, Cos, per dozen	3 0-3 6		Turnip Tops, bags	2 0—	
Mint, per dozen bunches	2 0-30		Watercress, per doz. bunches	0 4-0 6	
Mushrooms (house) per lb.	0 9-0 10				

REMARKS.—Australian and Tasmanian Apples are arriving in large quantities, and there is a good demand for them. Canary Tomatoes are now scarce and good samples are very dear. English Tomatoes are now on the market. A few

English Peaches and Muscat Grapes are to be obtained but the prices for these are very high. Newtown Pippin Apples from California are exhausted. Oranges of all varieties are much dearer. The trade for vegetables is very quiet. *P. L., Covent Garden, Wednesday, April 24, 1907.*

POTATOS.

Blacklands, 85s. to 95s.; Lincolns, 95s. to 110s.; Yorks, 95s. to 110s.; Scotch, 90s. to 105s.; Dunbars, 100s. to 120s.; Teneriffe, 10s. to 14s. cwt. Trade is about normal for the time of the year; prices are firm with an upward tendency. *W. J. C. & S., Covent Garden, April 24, 1907.*

COVENT GARDEN FLOWER MARKET.

There is a little improvement in the trade for pot plants. Ivy-leaved Pelargoniums Madame Crousse and Galilee from Mr. P. Ladd's and from Mr. Thos. Child's nurseries are well-flowered show varieties, and Zonals are of the best quality. Daffodils are not quite finished, and many were noticed on Messrs. Whiteley's stands. Mignonette is over plentiful, and even the best quality plants are with difficulty disposed of. Dwarf, well-furnished Marguerites are sent by Mr. Ward, Southgate. Heliotropiums in well-finished plants are seen on several stands. There are still good Indian Azaleas, but many are now past their best condition of flowering. Liliiums Harrisii and longiflorum are of good quality. Spiraeas in several varieties are over abundant, and though the specimens are well flowered they realise very little money. Genistas are plentiful and well flowered. Good Ericas are consigned by Messrs. Sweet, H. Evans & Sons, and B. Mallar & Sons. Herbaceous Calceolarias from Messrs. H. B. May & Son's nursery are dwarf and well flowered. Intermediate Stocks, with flowers in white, red, and pink colours, are noticed from Mr. Hutchings' establishment. In Roses some good Ramblers are seen, also hybrid perpetuals, and Madame Levassieur. Lily of the Valley in pots is very fine. Hydrangeas do not sell readily.

BEDDING PLANTS.

Quite a brisk trade exists for garden-plants, but supplies seem excessive. In addition to the new portion of the market being filled there are also many temporary stands erected under the new foreign flower market. Mr. Rasmussen has his famous strain of Petunias. Zonal, Tricolor, Silver and Ivy-leaved Pelargoniums are seen in plenty, whilst Calceolarias, Dahlias, &c., in well-established plants are procurable. Store boxes of almost everything grown for bedding may be had. Hardy flower roots are abundant. Tomato plants in pots and boxes are supplied by several growers. Cucumber plants are also to be had.

CUT FLOWERS.

Trade still fluctuates. Yesterday was a busy morning, but to-day business was very quiet again. Roses of the best quality are over abundant. Of sorts noted were Maréchal Niel, Caroline Testout, Captain Hayward, Frau Karl Druschki, La France, Liberty, Mrs. J. Laing, Bridesmaid, and Madame Abel Chénay. Sweet Peas are now plentiful, but they are not selling very readily. There is still a superabundance of Daffodils. Tulips of the Darwin type are very fine. Liliiums are well supplied, and Callas have been over plentiful for some time past. Gypsophila elegans, though seen in large quantities, keeps up in price. Spanish Irises are now coming from many sources, and prices will no doubt drop. Gladiolus Colvillei, "The Bride," and other varieties are obtainable. Dorianum plantaginum is very pretty. Of imported flowers, Anemones, Ranunculus, Parma Violets, yellow Marguerites, Stocks, and Narcissus, are the leading features. Large quantities of Hyacinth blooms from Holland are seen. Mr. Wermig has quite a collection of cut branches of hardy deciduous flowering shrubs. *A. H., Covent Garden, Wednesday, April 24, 1907.*

Obituary.

HENDRIK VAN WAVEREN.—Died, at Hillegom, Holland, on March 24, 1907, aged 96 years, Hendrik van Waveren, of the widely known firm of Waveren Brothers, bulb-growers of that place.

PROF. KJELLMAN.—The death of Prof. Kjellman, of Upsala, is announced as having taken place on April 22. The professor accompanied various polar expeditions, and would have taken a prominent part in the forthcoming celebrations of the bi-centenary of Linnæus' birth. It is only a few days since we received some communications from the Botanic Garden in which the illness of the professor was mentioned.

ALOIS KROPATSCH died on March 11 in his 55th year. He filled the post of Imperial and Royal Gardener in the Prater at Vienna, the grand natural park of the Austrian metropolis. Previously he had held several appointments in France (Ferrières-en-Brie), and was at one time in the Royal Gardens at Kew. The deceased was appointed in 1888 as park gardener in the Prater, and subsequently to laying out of the grounds for the Agricultural and Forest Exhibition at Vienna, in 1890, he was given the post of Hofgärtner in the Prater.

E. MERTENS.—This able landscape gardener and nurseryman died at Zurich on March 23, at the age of 60 years. The deceased was born in Brussels and received his education as a horticulturist at the Horticultural School at Ghent. On leaving that establishment he went first to Schaffhausen and later to Zurich, where he became a partner in the firm of Froebel, and in 1887 established a business of his own in which he was very successful.

His forte was landscape-gardening, and numerous examples of his work are to be seen all over Switzerland, and his services were also often in request in other countries. To the people of Zurich he will be long remembered for the Quay Park, the planting of which he carried out. He had also the superintendence of the Ton Halle gardens. In matters of taste and ideas he was not to be won over to the modern style in landscape gardening and was of such an artistic and independent nature that he had to be allowed to have his own way. He held many offices in the town, was president of the "Flora" Horticultural Society and vice-president of the Deutsch Schweizerischen Gartenbau Verein, &c.

ANSWERS TO CORRESPONDENTS.

ABUTILONS LOSING THEIR LOWER LEAVES: A. E.

We suspect you have planted them in the beds when they have been dry at their roots. You should have given them a good watering some little time before they were planted, and when in the beds water freely until the roots ramify in the soil. Any check, such as drought or a too cold atmosphere, will cause them to drop their lower leaves. Pinch all the flowers out when in the bud state, previous to planting.

ANTS IN PEACH HOUSES, VINERIES, &c.: X. A correspondent recommends the application of a little Vaporite around the stem of each tree.

CORRECTION. In fig. 110 of our last issue the central figure represents the leaf of the Plum, and the figure to the right that of the hybrid.

CORSICAN PINES: H. N. The plants are affected with a fungus called *Peridermium Pini*. The same fungus also grows on the common Groundsel, but then has quite a different appearance. Keep the weeds down, and pull up and destroy by fire all the affected plants, or the disease will spread. (Insect next week.)

FOOD FOR BEES: H. R. The quantity of sugar necessary for mixing with seven pints of water in making the syrup recommended by *Chloris* on p. 251 of our last issue, should read 10 lbs., which quantity was given by our expert, but which, by a printer's error, was stated to be 1 lb.

GRASSES FOR A GOLF LINK: W. E. As the conditions differ so widely in almost every "green," one set of grasses cannot be recommended for all, but they should be selected with due regard to the rainfall, aspect, altitude, soil, sub-soil, &c. The seedsmen have on sale special mixtures of grass seeds for sowing on golf links, and you cannot do better than to purchase some well-known nurseryman's selection, first informing him of the conditions. Clover is not recommended for inclusion; its broad foliage holds much moisture, it is soft and wears badly, and it becomes very thin in places for the winter.

INARCHING THE VINE: Anxious. You can practise inarching with green, actively-growing wood, but it will be necessary to select a branch of similar thickness on the stock, and this will necessitate it being grafted on to one of the side shoots instead of on the main stem. This system of inarching is very effective, and in the course of a few weeks the inarched shoots will grow freely. Make a downward cut in the stock and a corresponding one in the opposite direction in the shoot of the pot vine; bind the shoots together with bast and cover the union with moss, which should be damped several times each day.

NAMES OF PLANTS: D. W. *Forsythia suspensa*.—*E. W. K.* *Narcissus incomparabilis* Figaro.—*W. I., Cardiff.* 1, *Aubrietia deltoidea* var. *taurica*; 2, *Epimedium rubrum* var. *luteum*; 3, *Saxifraga cæspitosa*.—*Y. Z.* 1, *Odontoglossum citrosimum* punctatum; 2, *Justicia flavicoma*; 3, *Lomaria gibba*; 4, *Davallia hirta* cristata; 5, *Polypodium aureum*; 6, *Nephrolepis exaltata*.—*J. M. F.* 1 and 2, *Primula denticulata*; 3, *Primula cortusoides*.—*E. B.* *Gaultheria Shallon*.—*R. B.* 1, *Pittosporum Tobira*; 2, *Acacia*, next week.—*D. T.* *Begonia*, not recognised.—*C. S.* 1, *Marattia podolepis*; 2, *Marattia Raddei*.—*F. F.* 1, *Cuphea ignea*; 2, *Pelargonium echinatum*; 3, *Justicia anisophylla*; 4, *Agatheae celestis*; 5, *Tropæolum tricolorum*; 6, *Leptospermum grandiflorum*.—*Constant Reader.* 1, *Amelanchier canadensis*; 2, *Forsythia viridissima*; 3, *Pyrus Malus floribunda*; 4, *Saxifraga hypnoides*; 5, *Fritillaria Meleagris*; 6, *Leucojum vernum*.—

M. L. L. *Cupressus macrocarpa*.—*No Initial.* 1, *Akebia quinata*; 2, *Clematis montana*; 3, *Amelanchier canadensis*; 4, *Pyrus Malus floribunda*; 5, *Forsythia viridissima*; 6, *Berberis Darwinii*.—*J. A.* Seedling varieties, which we cannot name. Send them to some nurseryman who makes a speciality of these plants.—*A. W.* Why send such abominably bad specimens so carelessly packed? 1, *Lycium sinense*, so-called Tea tree; 2, *Lonicera tatarica*; 3, not recognisable; 4, *Lygodium scandens*. The *Cordylus* is suffering from bad treatment. It is no Palm.—*C. B.* 1, *Oncidium sphacelatum*; 2, *Odontoglossum Wallisii*; 3, *Aerides falcatum*; 4, *Masdevallia simula*; 5, *Aerides japonicum*; 6, *Dendrobium moniliferum* (japonicum).—*F. H.* *Cattleya Mendelii*, *Dendrobium nobile*, and *Odontoglossum Pescatorei*, with exceptionally well-marked lip.—*Y. Z., Waterford.* 1, *Oncidium altissimum*; 2, *Bifrenaria Harrisoniae*; 3, *Cyathea dealbata*; 4, *Dicksonia antarctica*; 5, *Alsophila excelsa*. *H. J. W.* 1, *Odontoglossum Coradinei*; 2, *Odontoglossum triumphans*; 3, *Odontoglossum luteo-purpureum*; 4, *Odontoglossum crispum*.

PEACHES: Anxious. So far as we can tell from your letter your treatment has been quite correct, and the only cause we can suggest for the trouble is an escape of gas, which would certainly bring about such results.

PEACH SHOOTS DISEASED: P. Bros. The whitish appearance of the foliage is known as Silver Leaf disease, and the cause of the complaint is suspected to be a fungus. Cut out and burn the affected branches, and if the tree is badly injured, grub it up and replace it with a healthy one, but first afford some new soil and remove all traces of the old roots.

PEA WEEVILS: A. E. M. The insects are the common Pea Weevils. Trap with slices of some vegetable, such as Carrot or Potato.

PROPAGATING THE LOGAN BERRY: H. T. The simplest way of increasing this plant is by division of the stools or crowns in the autumn. It sends up stolons freely from the base. The shoots will form roots freely if they are covered with soil and still attached to the plant. Cuttings will also root readily in sandy soil in a cold frame in autumn.

THE DOUGLAS FIR: Miss B. The finest specimen we know of is at Dropmore, height (in 1903) 127 feet. The following measurements of various specimens were taken some years ago: Powderham, Devon, 106 feet; Murthly, Perthshire, 97 feet; Lynedoch, 92 feet; Castlewells, Ireland, 100 feet; Durrus, Aberdeenshire, 90 feet; Castle Menzies, 92 feet. The tree at Bury Hill, 68 feet 6 inches, is, therefore, moderate in dimensions.

TOMATOS AFFECTED WITH SPOT: H. C. From your description of the disease we suspect it is *Cladosporium lycopersici*, the black spot disease. Destroy all the injured fruits by burning. Younger batches of plants in the flowering stage should be sprayed with Bordeaux mixture or liver of sulphur, wetting the flowers in the process. You can do nothing in the case of your fruiting plants.

TULIPS DISEASED: E. H. The bulbs and leaves are badly affected with the fungus *Botrytis*, so often described in our columns. See note on the prevention or cure of the disease by Mr. Polman Mooy, p. 168.

VINE SHOOTS: Perplexed. The specimen was too small for proper investigation, and it was dried on arrival. Please send others better packed.

VINES WITH WARTY EXCRESCENCES: Vinifera and W. W. The growth is not caused by a fungus, but is merely intumescence, the result of growing the vines in too damp and too close an atmosphere.

WILD ARTICHOKE: S. W. F. Three garden vegetables are known as Artichokes—the Chinese, Globe, and Jerusalem, and as each belongs to a different genus it is difficult to know what you mean by the Wild Artichoke. Of course each is derived from an uncultivated or wild type.

COMMUNICATIONS RECEIVED.—A. G. S.—Otto Zeegens, Amsterdam.—D. W. C. B.—W. B. H.—A. F. P., with thanks.—J. O. B.—R. W. F.—W. G. S.—J. G. B.—A. D. W. F. M.—J. L. R.—Dr. Winkler, Breslau.—W. P.—J. W.—D. H.—A. A. W. & Son.—G. A. C.—A. S.—C. E.—J. D. G.—T. W. B.—G. H. H.—J. D.—E. H. J.—G. W.—C. T. D.—F. M.—H. R. W.—F. L.—W. C. G. L.—H. J. G.—F. W.—N. F. E. (thanks for 2s. 6d. for R.G.O.F.).



THE Gardeners' Chronicle

No. 1,062.—SATURDAY, May 4, 1907.

CONTENTS.

Alexandria, horticulture at...	295	Obituary—	
Apple, the seedless	295	Hon. Mark Rolle	299
Auricula Miss Berkeley	296	Orchid notes and gleanings—	
Birds and buds	298	Odontoglossum crispum Fowlerianum	277
Beans, butter or wax	298	Orchids at the Shrubbery, Oxford	278
Books, notices of—		Platycerium alcinorne, an abnormal plant of	285
Book of the Open Air	295	Pruning of fruit trees, the	286
How to Study Wild Flowers	295	Societies—	
List of British Seed-Plants and Ferns	295	Horticultural Club	291
Nature's Own Gardens	295	Manchester and N. of England Orchid	291
The Dillonian Herbaria	294	National Auricula	290
Carbon supply of plants, the, a puzzle	277	Royal Horticultural	288
Chenopodium Bonus-Henricus as an edible vegetable	297	Royal Meteorological	292
Cocoa-nut, the seedless	295	Royal Scottish Arboricultural	292
Commissions, secret	294	Soil inoculation, a lecture on	291
Country garden, the	291	Trees and shrubs	290
Flower-beds, the effective arrangement of	279	Vegetables—	
Fritillaria imperialis	297	Custard and Bush Marrows	296
Fruit-growers and bad debts	297	Week's work, the—	
Gardening at the Zoo	295	Apiary, the	283
Glasgow, the weather at Kew notes—	284	Flower garden, the	283
The Greenhouse	290	Fruits under glass	282
Nursery Notes—		Hardy fruit garden	283
Barr & Sons, Ditton	297	Kitchen garden, the	283
May & Sons, H. B., Edmonton	290	Orchid houses, the	283
		Parks and gardens	282
		Plants under glass	283

ILLUSTRATIONS.

Auricula Miss Berkeley	296
Odontoglossum crispum Fowlerianum	278
Sassenheim exhibition, flower beds at	279
Sophro-Lilia "Phroso superba"	281
View in the greenhouse at Kew (Supplementary Illustration)	

CARBONIC ACID GAS: A PUZZLE.

It is universally recognised that one of the chief elements in plant-growth is carbonic acid gas, which is absorbed through the pores of the foliage, and there transmuted by solar action on the chlorophyll into compounds, which form the solid parts of the structure, and also play a material part in developing the innumerable secretions of plant life. This is effected by dissociating the carbon from the oxygen, and forming fresh combinations. One result of this, however, is that a proportion of this absorbed carbon in all trees and woody plants, and, probably, to a less extent, in succulent ones, eventually finds its way to the soil as a practically imperishable residuum, such as is seen in immense deposits of coal of various kinds, including peat, and, in short, of all vegetable contributions to the earth's strata. Annually, therefore, an immense amount of carbon, of which much is locked up in the earth, is extracted from the atmosphere. This process, too, has doubtless continued uninterruptedly from the in-

conceivably remote period when vegetation first commenced, and this brings us to the puzzle we have in mind. We are taught that the balance is maintained by the fact that, while all the members of the vegetable kingdom absorb carbonic acid gas, those of the animal kingdom exhale it by dissociating the gases contained in the air they breathe and the food they consume, using the oxygen to revitalise the blood and throwing off into the air the carbonic acid gas produced in the processes. In this way there is undoubtedly a large return, but it can be only a partial one. In the first place, this leaves out of account entirely the constant removal of that which, as we have seen, becomes locked up permanently in the soil; and, in the second place, when the relative proportions of plant-life and animal-life in the earth's surface are considered, there is apparently, and, I believe, really, an enormous relative difference in favour of the plant-world. Vast areas of the terrestrial surface are densely clothed with vigorous forest vegetation, and by far the greater part with vegetation of some kind, the comparative areas of absolute desert being small. The latter, too, scarcely affects the question, since animal life, being almost dependent, directly or indirectly, on vegetable life, is equally absent where vegetation fails. Now, if we examine these forestal and other areas where vegetation is rife, even if we take into account the insect world with its myriads, and make every allowance for the capacity of animals to hide themselves, their numerical proportion falls infinitely short as compared with that of all the plants, every leaf of which during the growing season is actively engaged in absorbing carbonic acid gas from the air as a preliminary to solidifying a proportion and putting it out of circulation. Leaving the dry land, and turning to the ocean as a possible source, we find no solution there, for over the vegetable kingdom therein ranging, from the immense seaweeds of the Sargasso Sea to the microscopic vegetation which pervades the waters, the animal life cannot possibly preponderate, for the simple fact that rules here as on land, viz., that the animal can only exist by consuming the vegetable directly or indirectly, since carnivora live by devouring the vegetarians, and preponderance of animal life anywhere is, therefore, an impossibility, nor—and this is very important—can an animal give out more carbonic acid than it takes in in the shape of food. Hence we are confronted with the fact that there must be a constant draft upon the aerial supply which is not replaced by animal exhalations. Seeking some other source, we know that in some places, such as the Grotto del Cane, in Italy, carbonic acid is emitted from the soil; active volcanoes, probably, exhale the gas on a larger scale; man, apart from his breathing, contributes some by the combustion of fuel in his manufacturing and domestic fireplaces, and for motive power, &c., generally; but, if we could take a bird's-eye view of the world, we should perceive that all these contributions are the merest trifles as compared with the demand. Finally, we must enquire what the aerial supply is, and we learn that, roughly speaking, there is only one part of carbonic acid in about three thousand parts of air, and that there are no data and no evidence implying that this proportion is decreasing. The puzzle,

therefore, is, How is the balance maintained? It is interesting, in this connection, to quote Prof. Huxley's *Physiography*, p. 84, in which he estimates the weight of solid carbon existing as a constituent of the carbonic acid gas in the atmosphere covering a square mile of land at about 3,700 tons, which suggests the question as to how long this supply would last for a square mile of dense forest of vigorous-growing trees, assuming that wood, as Prof. Huxley pointed out, "contains about half its weight in carbon." Having arrived at this concrete example relating to supply, it occurred to me to write to my friend, Mr. A. D. Webster, the well-known authority on forestry, to see if we could arrive at any definite data as to demand. He writes:—"The amount of timber added to a forest per year will, I find, vary exceedingly according to soil, age, and particular species of tree, but for all practical purposes it might be put down at 12,000 tons per square mile. Larch approximates 10,000 tons, and Oak 13,330, and this is worked out on the low basis of each tree producing 1 cubic foot per annum."

This means that the large areas of forest on the earth's surface entirely exhaust the supply of carbonic acid existing over at least three times their area each year, which, in its turn, means that, ignoring all other vegetation entirely, the entire atmospheric supply would become exhausted within a few years, even if one allows for partial restoration in the several ways above alluded to and the areas devoid of vegetation.

Personally, I find that the puzzle I started with has immensely increased in profundity, now that I have defined the two factors in it. In this connection I may mention an experiment I made. Two years ago I placed a small quantity of washed sand in a pickle bottle, hermetically stoppered with a glass stopper and a rubber ring, which I wired on after dropping a severed base of a Harts-tongue Fern frond on the surface of the sand. The base (a $\frac{1}{2}$ -inch section of the bottom of the stalk) had a tiny bud on it, which has sent up five or six fronds, each several inches long, very much drawn and attenuated, it is true, but yet alive, and fresh growth is showing. This bottle holds approximately 24 cubic inches of air, in which we may assume there was .008 of a cubic inch of carbonic acid gas, out of which, plus the little material in the base itself, these fronds have been fashioned. How is it done? Chas. T. Druery, V.M.H., F.L.S.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM CRISPUM FOWLERIANUM.

Our illustration (fig. 115) represents one of the most beautiful and distinct forms of the much-valued blotched section of the favourite *Odontoglossum crispum* from a plant in bloom in the collection of J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. J. Davis). It has been named after its owner, the well-known chairman of the Orchid Committee of the Royal Horticultural Society, who is a keen collector of good and rare Orchids, and especially of *Odontoglossums*, which grow to perfection in the model cool Orchid house at Glebelands.

The reverse side of the flower is heavily blotched with claret colour, and it has a light

violet shade along the middle. The ground colour of the flower is white, but the greater part of the segments is taken up with deep ruby-crimson blotches of a peculiar brightness. The sepals have generally two very large irregularly formed ruby-crimson blotches, and some smaller ones of a purple hue. The petals are marked on about two-thirds of their area with large irregular, confluent ruby-crimson blotches, slightly divided in two or three places by narrow white lines, a thin purple line running from the base to the blotching in each petal, the margin being white. The lip is of good size, crimped at the margin, white, with a yellow crest and a pleasing marking of purple. The upper side of the column is tinted a deep reddish-purple. Distinguishing features in the flower are the clearness of its white ground and the glowing appearance of its rich ruby-crimson marking. Originally the plant belonged to Messrs. J. & A. A. McBean, of Cooksbridge, Sussex.

watched for, and already some very promising varieties have flowered, two of the best being the very distinct *O. crispum* Fergus (a flower of good shape and having a nebulous rose-purple centre to each segment), and another form with very finely shaped flowers, densely spotted with claret-red, and which is again expanding its flowers. Several others of the *O. crispum* Bonnyanum class, and with one large blotch in the centre of each segment, are in bloom; and of the white and rose-tinted typical form there are a number of very large flowered specimens, in each case the spikes being unrestricted, and bearing all their flowers, often to the number of 15 or 16, all expanded together. Examples of this kind sufficiently explain why *Odontoglossum crispum* is the favourite of most orchidists.

O. crispum is represented by thousands of fine plants, and other species and hybrids are in less quantity, but in equally choice condition. In bloom are some excellent *O. Adrianæ*, one with very large, broad-petalled flowers of a pale

vexillaria, including the varieties Queen Alexandra, superbum, and other rare forms. These are thriving and sending up spikes abundantly. In another division the *Cattleyas* and *Lælias* are accommodated, the specimens of *Lælia purpurata* being very strong and well set with flower-sheaths. The scarlet *Epidendrum O'Brienianum* covers the end of the house, and among other subjects in bloom were noticed *Phaius Norman*, *Epiphrontis Veitchii*, various *Masdevallias*, *Lælio-Cattleyas*, and on one side a representative selection of hybrid *Cattleyas*. The raising of hybrid *Odontoglossums* is in progress in these gardens, and little plants of various crosses were noticed, one of the most interesting being the already proved and handsome cross between *Odontoglossum Pescatorei* and *Gohlhoda Noezliana*.

The warmer houses are reached through a lobby arranged as an ornamental rockery. Here in one house was found a very fine batch of the pure white *Cypripedium niveum* in bloom. These, with *C. bellatulum*, *C. Godefroyæ*, and others of the section, and their hybrids, seem to thrive well at The Shrubbery, and some promising crosses of these plants have been made, *C. Lawrenceanum Hyeaenum* × *C. bellatulum album* being one of which much is expected. In one of the houses is a large batch of *C. callosum Sanderæ*, together with several *C. Lawrenceanum Hyeaenum*, and *C. Maudiae*, *C. Marshallianum*, and others; and of uncommon hybrids in fine condition were seen *C. Honoræ*, *C. Venus*, *C. Mrs. E. V. Low*, *C. Winnifred Hollington*; some good forms of *C. aureum*, including the still rare *C. aureum Surprise*, *C. Gravesiæ*, and many other choice hybrids of *C. niveum*, some of which had not yet flowered. The next house was devoted to seedling *Cypripediums*, and a good batch of *C. Lawrenceanum* varieties in bloom. The most distinct is *C. Lawrenceanum Marjorie*, with which Mr. Ogilvie took the Second Diploma at the Royal Horticultural Society, June 12 last. The plant, which has since greatly improved, seems distinct from either *C. L. Hyeaenum* or the nearer ally, *C. L. Gratrixianum*. It bears a noble, green-tinted flower, with a large white dorsal sepal bearing from the base emerald-green lines, the petals and lip having a very slight rose tint. The varieties of *Lælia anceps*, *Catasetums*, &c., are suspended in the corridor, and in the adjoining warm house is a small healthy lot of *Phalænopsis* and a good selection of the best varieties of *Dendrobium nobile*, and the showiest hybrids, some of which are in bloom. One of the best of the hybrids is the dark yellow *D. Thwaitesiæ*, Veitch's variety, for which Messrs. James Veitch & Sons received a First-class Certificate in April, 1904, and of which there are several healthy little plants at The Shrubbery. In the intermediate house one side is devoted to *Cymbidiums*, in flower being several large plants of *Cymbidium eburneum* with many flowers, good *C. Lowianum*, a fine plant of the cream-white *C. eburneo-Lowianum* with several spikes, *C. Devonianum* in bud, two finely flowered *C. Schröderianum*, *C. insigne*, &c., together with some showy examples of the scarlet *Sophrontis grandiflora* and *Ada aurantiaca*, the yellow *Oncidium concolor*, *Odontoglossum triumphans*, and other species. In another house a specimen of *Cypripedium Rothschildianum* has a spike of four flowers, and many plants of *C. niveum* are also in bloom, with *Angræcum sesquipedale*, *Dendrobium Dalhousianum*, *D. Juno*, &c. In the other plant houses are *Carnations*, yellow *Richardias*, *Crotons*, and other decorative plants, and the garden outside will later be showy and interesting, by reason of its clever arrangement and the variety of the subjects included in it. J. O'B.

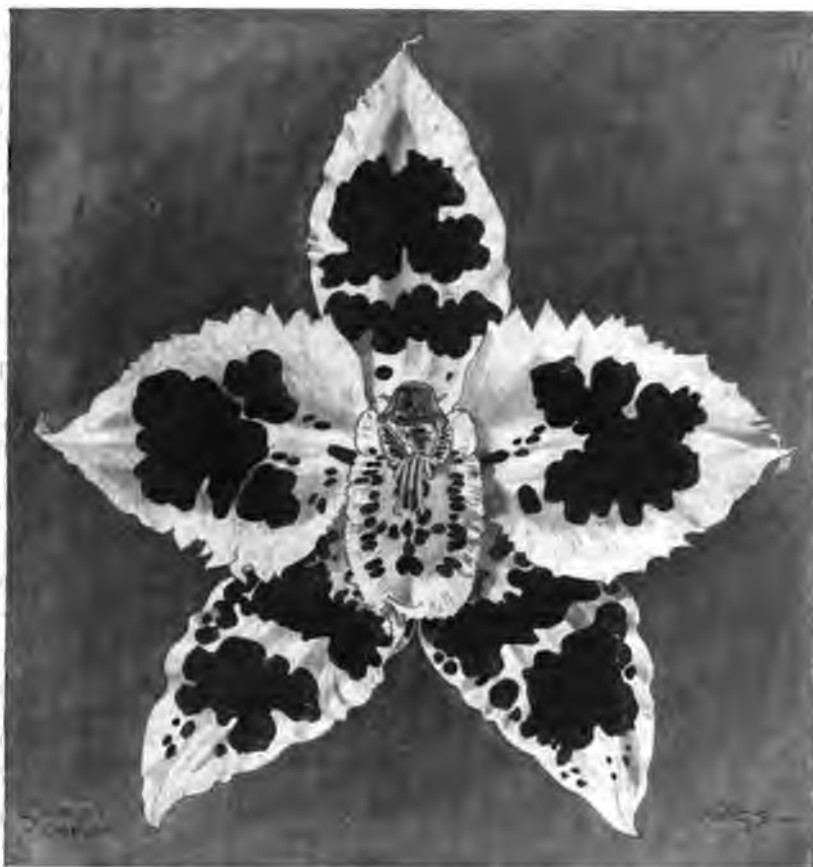


FIG. 115.—*ODONTOGLOSSUM CRISPUM FOWLERIANUM*.

(See page 277.)

The healthy condition of the *Odontoglossums* at Glebelands proves the success of the model Orchid house there, described in the *Gardeners' Chronicle*, December 15, 1906, p. 404, and which contains several excellent new features that might with advantage be copied by others who are not so successful in the culture of these beautiful plants. J. O'B.

ORCHIDS AT THE SHRUBBERY, OXFORD.

THE finest form of *Odontoglossum crispum* takes the leading place in the compact collection of F. Menteith Ogilvie, Esq., at Oxford (gr. Mr. Balmforth). Some years of experience in the culture of these favourite flowers has enabled their owner to provide quarters suitable for them in every respect, and a judicious weeding out of any but the finest forms has resulted in the present large collection being in the finest condition. Spotted forms are, of course, eagerly

yellow, spotted with dark reddish-purple, is most beautiful; there are also *O. loochristiense*, *O. Rolfeæ*, *O. triumphans*, *O. Vuylstekei*, and many others. One plant of *O. crispum xanthotes* has two spikes of flowers ready to expand. These cool *Odontoglossum* houses are roomy, span-roofed structures, with central staging and side staging of open work. The moisture-providing surface is furnished by a low rockery on the floor beneath the stages, covered with green *Tradescantia* and other plants; and the close staging beneath the open one on which the plants are standing, and which is usually adopted for holding moisture, is now dispensed with. In these houses *Dendrobium Falconeri*, suspended overhead, thrives admirably, as do also *Vanda Kimballiana* and *Lycaste Skinneri*, varieties of which are making a good display in one of the houses; the variety *Ruby* has rich ruby-red petals and lip.

In another house is a good batch of *Miltonia*

EXHIBITION AT SASSENHEIM.

It is one thing to see bed after bed, row after row of Narcissus and Hyacinths in Holland, with a stork's nest on a long pole in the middle, and another thing to see the bulbs grouped as they would be in a private park or garden, with due reference to the surroundings.



FIG. 116.—SASSENHEIM: HYACINTHS IN FRONT OF THE MANSION.

It is one thing to see a vast glare of colour and experience an overpowering fragrance, and another to come suddenly on a bright patch of colour in front of a belt of leafless trees or evergreen shrubs. The directors of the great bulb exhibition at Sassenheim have adopted the latter plan. At present we do not know the details, but we can in a measure judge of the effect by the accompanying illustrations which we received from the Algemeen Correspondentie Bureau of Amsterdam.

The plan of the "Tentoonstelling" shows a park in the English style, with hundreds of beds appropriately arranged, and so contrived as to produce a picture and enable the connoisseur to examine and compare the components of each bed individually.

THE EFFECTIVE ARRANGEMENT OF BEDDING PLANTS.*

(Concluded from page 262.)

TYPICAL BEDS.

Let us take, for example, a row of five beds. In No. 1 plants with pinnate leaves might predominate amongst the taller subjects. No. 3 might be characterised by the presence of Japanese Maize, *Eulalia japonica*, &c.; whilst in bed No. 5 the use of broad-leaved plants such as *Ricinus* Gibsoni or *Wigandias* might be adopted. In beds Nos. 2 and 4, between those already mentioned, we could utilise flowering plants such as *Plumbagos*, *Streptosolens*, &c. Thus each bed would be distinct in its most prominent features from those next to it.

For the carpeting we might choose such plants of lower growth as would associate well with the taller species already decided on. *Celosias* may be well associated with the *Grevillea*, &c.; their somewhat stiff and upright habit will produce a pleasing, yet not too striking, contrast with the more graceful habit of the *Grevillea*. In bed No. 3, however, we should utilise

plants of a freer habit than the *Celosias*, in order to associate with the narrow, uniform leaves of the Maize above them, therefore we should do well to choose such plants as *Alonsoa incisifolia* or *Fuchsias*. In bed No. 5 we should also require plants of loose habit as a foil to the rather heavy foliage above them.

plants of striking habit in masses according to the form of their foliage. The first thing to be considered is the choice and situation of the beds. Groups of beds are most undesirable unless very widely separated. Widely spaced beds, in rows by the side of a straight walk, are better; but the ideal place for a sub-tropical garden is in some shady dell by the side of a stream or lake, where the walks are winding and where the beds can be irregularly disposed in front of a good background of trees and shrubs. The shape of the beds is also of importance. Thus nothing is more displeasing than a square or oblong bed filled with pinnate-leaved Palms or other plants of graceful habit. The straight outline of such a bed is altogether opposed to the appearance of the plants it contains, and utterly destroys any good effects they might otherwise have. For this reason a round or oval bed, or even a bed of irregular shape, is to be preferred to one of a rectilinear shape.

In the grouping of the plants, it is best to confine each bed to such as have similar habits, keeping those with stiff, narrow leaves, such as *Phormium tenax* and *Pandanus* apart from such plants as *Cannas*, *Ricinus*, &c. Flowering plants should be used very sparingly amongst the foliage plants, although beds of flowering plants in the neutral style are not out of place as accompaniments to the truly sub-tropical beds.

Fan-leaved Palms do not group well together, nor do they associate well with other plants in beds, except where the latter are very large. They are, however, amongst the best plants to be used as specimens on the lawn. In fact, Nature seems to have intended them for such situations, as in their native habitats they are generally found on grassy plains or in open forests, and, unlike the pinnate-leaved Palms, they seldom occur in dense bush. In a border of sub-tropical plants, however, the fan-leaved Palms may often find a place, as much greater freedom of arrangement may be followed here than when the plants are disposed in beds.



FIG. 117.—HYACINTH AND TULIP-BEDS AT SASSENHEIM.

SUB-TROPICAL BEDDING.

In the formal style of bedding the object is to arrange plants in uniform masses with regard to their colour only; in the natural style, the object is to produce harmony of colour combined with contrast of form; whilst in sub-tropical bedding the object is to arrange large

This applies also to flowering-plants, and also to variegated-leaved plants, which may be used much more freely in a border than in a bed.

Plants specially suitable for sub-tropical bedding are those with characteristically graceful or massive foliage. A. W. Proudlock.

* A paper read before the members of the Kew Gardeners' Mutual Improvement Society by Mr. A. W. Proudlock.

TREES AND SHRUBS.

RHODODENDRON INDICUM (AZALEA) AT LEONARDSLEE.

THE collection of these plants in the open garden at Leonardslee is very rich in varieties, and there are in addition to named sorts hundreds of choice seedlings, the whole making a brilliant display during May and June. These plants require to be kept clean, and free from the presence of tree roots. They should be top-dressed annually, if possible, with a mixture of good leaf soil and cow manure, but, under any circumstances, they should not be left longer than three years without receiving additional food in the shape of a top-dressing. Azaleas should not be planted deeply for they are surface rooting, but they should be planted as firmly as is possible. Sandy loam with a mixture of flaky leaf soil forms an ideal rooting medium, and a top dressing as before stated should be given the second year after planting. The plants need little in the way of pruning, but long, unshapely growths should be cut out, and if the pruning is performed when the plants are in flower, the shoots removed can serve a useful purpose to help to furnish the vases indoors. Azaleas can be shifted any time during the winter and up to the end of March, with every hope of success. Plants may easily be raised from seeds, and seedlings may be flowered in this locality within a period of four years from the time of seed sowing.

PHOTINIA SERRULATA.

IN answer to H. W. (p. 228), respecting the hardness of this shrub, the frost did not seriously damage our plant, and it was after the severe frost of March 8 that I took sprays to the Royal Horticultural Hall. We have lost very few plants from the effects of frost this season. Amongst those that have suffered most is *Dracæna Parryi*, and I am afraid some very fine plants of this tree will succumb; they appear to have been frozen about 3 feet up the stem. *Calistemon floribunda* has been injured at the tip of a few growths, but this is not to be wondered at, considering the trees made very late growths last autumn and developed a second batch of flowers. *Opuntia glauca* has been much injured, *Eugenia apiculata* has also suffered considerably, but *Eugenia Ugni* is unhurt. One large plant of *Fabiana imbricata* has several branches injured and this specimen was given protection by Heather and Bracken. An unprotected plant of this species situated a few yards away was unharmed. W. A. Cook, Leonardslee Gardens, Horsham.

JASMINUM PRIMULINUM.

THE severe winter here has not interfered with the flowering of this lovely species. It has been a sheet of yellow for the past month. The leading shoots made last summer have been crippled a little at the points, otherwise the plant is unhurt. The flowers are mostly produced from short, twiggy shoots made in the previous year, but as our plant was only put out a year ago I cannot say much about the treatment it requires, but probably if treated similar to *Chimonanthus fragrans*, by having the shoots spurred back moderately immediately after flowering, this would prove satisfactory. The plant occupies a very warm position. J. Mayne, Bicton, Devonshire.

NURSERY NOTES.

FERNS AT H. B. MAY & SONS', UPPER EDMONTON.

THIS firm also owns two other large nurseries: the one at Tanner's End, Edmonton, and the other at Chingford, but it is to the older nursery at Dyson's Lane, Edmonton, that the following remarks apply. Here it is that the choicer Ferns are housed. Many of the most popular varieties of market Ferns were first sent out from this nursery. Looking back, I remember the time when *Pteris serrulata cristata compacta* first

attracted attention, and this still retains favour with many growers, but it is not so extensively grown now as formerly, being superseded by *Pteris Wimsetti*, which was also sent out from this nursery, and which is one of the most popular market Ferns at the present time. *Pteris cretica Mayi* had a long run of favour, but it now has a rival in *Pteris Alexandra*, which also originated at Dyson's Lane. Many other old favourites, if not raised by him, were first brought into the market and popularised by Mr. May, who is one of the pioneers of Fern growing for market. *Adiantums* have given no novelties in recent years, but those raised in these nurseries a few years ago still remain popular. From one batch of seedlings several very distinct varieties occurred, and of these *Schneideri*, *tenellum*, and *Hemslayanum* each received an award from the Royal Horticultural Society; later, *Scutum ramosum* and *fasciculatum* were added. This nursery is also noteworthy for the raising of some of the most distinct varieties of *Aspleniums*, these including *Mayi*, *Herbsti*, and *Drueryi*, which have all been honoured with awards from the Floral Committee of the premier society.

Among *Davallias*, Mr. May's *D. Fijiensis robusta* is now extensively grown, and *D. r. gracillima*, and *D. r. magnifica* are other pretty varieties from the same source. *D. effusa* and *D. decurrens* also originated here. And the genus is represented at Edmonton by a large number of choice species, including the charming little *D. alpina* and *D. parvula*.

Gymnogrammas, including all the best species, are well grown. Varieties raised by Mr. May include *grandiceps superba*, *Mayi*, *Cordreyi*, *Reginæ*, *Alstoni superba*, &c.

Lomarias have been productive of many distinct varieties, these being chiefly raised from *L. ciliata*. *L. Hermineri* was very bright in colour at the time of my visit (November). *L. attenuata* is another species with tinted fronds. Of *Nephrolepis* a number of very pretty varieties have originated in this establishment, *N. exaltata superba* being one of the prettiest of all. *N. e. Mayi* is very distinct, and *N. e. crispato-congesta* very pleasing when small. *N. e. superba* is a fine variety. *N. e. canaliculata* is one of the most recent introductions, and this is a remarkably distinct kind that produces a hairy growth at the extremities of the pinnae. Several other crested varieties of *Nephrolepis* were noted, and all the best of the American sorts are grown. Of these *Whittmani* appears to be a great improvement on *Piersoni*. *N. elegantissima* recently gained a First-Class Certificate from the Royal Horticultural Society. It is a neat and compact plant, with a wonderful development of the additional lobes of the pinnae. *N. Barrowsi* is another *Nephrolepis* from America which looked promising. *N. e. Scotti*, the compact form of *exaltata*, as grown here, appears a very useful Fern, but the old favourite (*exaltata*), which makes the best basket Fern we have, is most extensively grown. More progress has been made with this genus, both in regard to improved varieties and in popularising them as market plants during the last few years, than has been done with any other Ferns. In *Polypodiums* some beautiful varieties have been raised: perhaps the most prominent is *P. Mayii*, the plumose form of *glaucum* or *sporodocarpum*. This Fern, like many others with extended growths, has failed to produce spores, yet large quantities have been propagated. It may possibly never pay to grow this variety for market, but it should be included in all collections. *P. Schneideri* is another beautiful Fern, and from this Mr. May has some sports. A new variety from America, *P. angustatum*, is a Fern of great promise. Particularly interesting and pretty were those with small fronds and spreading rhizomes, growing on moss-covered tree stumps. The *Platyceriums* are well grown, and seedlings of *P. grande* were doing well, also *P. angolense*, *P. Veitchi*, *P. madagascarense*, a distinct and new introduction, *P. alcorni*, and its

varieties, of which *divergens* may be considered the best form. In America the *Platyceriums* have been popular for decorative purposes, and if growers persist, they will soon be appreciated in this country for the same purpose, for they last better than almost any other Ferns.

Plants of *Pterises* seen included a large number of Mr. May's own raising. A batch of *P. Summersi* was very pretty. *P. Childsi*, another plumose variety, was well grown. I find there are 30 varieties of *Pterises* of Mr. May's own raising, and of these 18 have gained awards from the Royal Horticultural Society. I will conclude by mentioning the *Selaginellas*, which are represented by something over 50 of the best species and varieties. Interested Visitor.

KEW NOTES.

THE GREENHOUSE.

[SEE SUPPLEMENTARY ILLUSTRATION.]

AT this season of the year the pot plants in this house, No. 4, are changed more frequently, perhaps, than at any other. Whilst a number of subjects remain in the house in a decorative condition for several months, a few are valuable for about a week only, especially when such bright weather as at Easter last is experienced. Others, particularly species of forced trees and shrubs, are attractive for a fortnight or three weeks.

The section of plants known as "hard-wooded" are strongly in evidence at the present time. A large bush of *Eriostemon myoporoides*, on which the first flowers opened in December, is still carrying a goodly number of flowers. The pretty pink *Boronia fastigiata* (syn. *polygalaeifolia*) is not fragrant like *B. megastigma*, but it is more showy, very free-flowering, and eminently suitable for pot culture. *B. heterophylla* also deserves mention in passing. A small group of *Olearia stellata* in 6-inch pots is well in flower. It is worthy of more extended cultivation as a pot plant for the cool greenhouse, whilst it proves hardy in some parts of the country. *Ericas* are represented by *E. persoluta alba* and *rubra*, *E. candidissima*, *E. Wilmoreana*, and *E. Cavendishiana*. The scarlet-flowered *Correa cardinalis*, although a rather difficult subject to grow, is worthy of the extra attention it needs on account of its flowering freely, and remaining in flower, as it does, for so long a period. *Correa speciosa* major makes a better growth than the last-named: its flowers are also pretty, but not so striking as those of *C. cardinalis*. *Polygala myrtifolia grandiflora* (syn. *Dalmaisiana*) is well represented in the house, there being both large and small specimens. *Helichrysum* (syn. *Aphelexis*) *humile*, var. *purpureum* continues for a considerable time in flower; the shining, silvery leaves also render the plants additionally attractive. The large plants of *Acacia armata* are past their best condition of flowering, but a few in small pots serve to prolong the season. *A. hastulata* and two large specimens of *A. pulchella* are also worthy of mention. Two plants of *Audouinia capitata*, about 18 inches in height, are a mass of purple flowers, which, though small, are very numerous, and are arranged in crowded terminal heads.

Senecio auriculatissimus, sometimes called the Yellow Star Cineraria, is a notable feature. It is readily raised from seeds or propagated by means of cuttings, and the old plants may be grown for several years. Trained around three or four stakes in the shape of a balloon they are very pretty objects. *Dimorphotheca Ecklonis* is just now one of the most pleasing plants in this house when the sun is shining. The ivory-white ray florets, tinted with purple on the outside, are a fitting setting to the violet-coloured disc florets. A group of the scarlet-flowered *Salvia splendens* mixed with *Lilium longiflorum* forms a rich bank of colour. The *Salvias*, after flowering in this house last

autumn, were placed in an intermediate house in which they afterwards developed plenty of flowers. A brilliant scarlet colour such as furnished by this plant is always welcome.

The genus *Arctotis* is represented by several species. *A. aureola* has rich orange-coloured flowers. The ray-florets of *A. aspera* are white on their upper surfaces and tinted with pink beneath. The variety *arborescens*, as the name indicates, grows much more vigorously than the type; several of the plants at Kew are 8 feet or more in height. The ray-florets of this flower are also white above; the underside, however, has the pretty pink tinge more marked, rendering the lower side of the flower prettier than the upper. Being tall in growth,

certainly the most pleasing shade. Two large plants of a particularly good form of *Alonsoa incisifolia* are covered with rich red flowers. This is a glabrous, greenhouse shrub, with flowers disposed in terminal racemes. It has been in flower at Kew for several months past. Plants can be readily raised from seeds, but when a superior variety such as that in the greenhouse under notice is possessed it should be increased by means of cuttings.

A group of the rich yellow Canary Island Buttercup [*Ranunculus cortusifolius*] must not be passed by without mention. An old plant, fully 4 feet high, is surrounded by young plants 2 feet to 3 feet in height that were raised from seeds last year. One of our British wild plants,

THE COUNTRY GARDEN.

IN striving for a beautiful garden there is one thing that we cannot afford to overlook, and that is to make of it also an interesting one. Of course, every garden is, in a sense, interesting, but, just as some plants are more beautiful than others, so there are some of greater interest; and, if we want to secure an interesting garden, we must see to it that a full proportion of these finds a place. For instance, we might name as constituting especial interest the presence of those forms of blossom that are but sparsely represented in the flower-world, for such will always attract attention. Thus, the salver-shaped blossoms are ever with us, but take the *Dicentra spectabilis*, to what can you compare that graceful and wonderful shape of flower? It stands out among other plants as a beautiful, a rare, almost an idealised form of blossom. Or, again, some curious or unusual habit of growth—even a quaintly-formed seed vessel or fruit may constitute a plant's claim to be grown as a subject of especial interest. Such a plant as *Carlina acaulis* is thoroughly typical of an unusual habit of growth—a solitary flower to crown the elongated foliage, and that, too, of not common texture, or colouring; a silver flower, shall we call it? Of a plant producing a noticeable fruit, *Podophyllum Emodi* may be cited. For a good many reasons I look upon this as a desirable plant for the garden, beyond its merit as an interesting plant: its flowers, produced in May, are extremely pretty, and its highly-coloured fruit is ripe sufficiently early (by the end of July) to make the place again decorative during the summer months, and it flourishes in the semi-shade, a matter of considerable importance, I think, and decidedly a merit not to be overlooked. Unusual in habit of growth—yes, and striking too—is *Lewisia rediviva*. When in flower it is one of the unforgettable things, and it is not really difficult to grow it to perfection if established in gritty loam in the rock-garden in some sunny aspect, with a slab of stone on either side of it.

As touching both the beauty and the interest of the garden there is a consideration that seems to me worthy of careful thought and attention, and that is the need to secure to the full value the decorative effect of blossom in great variation of height. Take a garden poorly planted so far as flowering trees and shrubs are concerned, and compare it with one in which at early summer there is blossom from the top-most branch of an old *Acacia* tree down through the lesser heights of *Lilac*, and *Laburnum*, and *Guedres Roses*, and so descending to the plants in the perennial borders, the *Pæonies*, and *Oriental Poppies*, until it reaches well nigh to the ground level in the *Pansies* and the creeping, trailing things. Then, again, at a later season, how much fuller of blossom does a garden appear when the eye finds colour at the height of a bold group of *Hollyhocks* than it does if blossoms stop short at the height of *Phlox decussata* and early-flowering *Chrysanthemums*. I recently came upon a paragraph in which the writer was at the pains to praise the dwarf annual *Sunflowers*, and to regard them of greater worth by a good deal than the older and taller varieties. I may be wrong, but it seems to me this writer did not realise how valuable these tall, bold *Sunflowers* are in the garden—characteristic, handsome, distinctive, and for their very height filling a need, holding their own, and likely to hold it, as the new dwarf varieties will never do. To raise the colour level in a border to 6 or 8 feet is a vastly different thing from stopping short at three or four, so far as decorative value is concerned, and especially for distant effect.

There are some of our perennial plants that must be looked upon as indispensable, simply because they flower when they do. There are short periods in the midst of the flower year when there are, as it were, pauses: one of



FIG. 118.—SOPHRO-LÆLIA "PHROSO SUPERBA" (L. JONGHEANA X S.-L. LETA ORPETIANA): COLOUR OF FLOWER MAUVE-CRIMSON, WITH ORANGE DISC TO THE LIP.

(Awarded R.H.S. First-Class Certificate on April 16 when shown by Major Holford, see p. 259.)

the reverse of the flower is more often seen than the top. At present there are only one or two flower heads open on *A. revoluta*, but plenty of buds are visible. The chief points to remember in growing *Arctotis* are that the plants require during the winter sufficient heat only to counteract frost, a sandy, well-drained soil, and water sufficient to prevent them from flagging.

A number of plants of the flesh-pink Stock "Beauty of Nice," 2 feet in height, interspersed amongst a group of double *Wallflowers*, together pervade the air with their delightful fragrance. *Nicotiana Sanderæ* is to be seen flowering profusely in many shades of colour, pure white, deep purple, rich red, &c. The last-named is

Fritillaria Meleagris (the Snake's Head *Fritillary*), finds a place. The flowers are white, pale purple, and deep purple. The bulbs were potted last autumn in company with such plants as *Iris reticulata* and kept in a cool frame, from which frost was excluded till the flower buds appeared. The new yellow *Coreopsis Grantii* gives promise of being a useful addition to our winter and spring-flowering greenhouse plants. Although *Buddleia asiatica* has lately been extolled very frequently, the more the plant is seen the more does it impress one with its worth. The plants in this house have been in flower for a period of between seven and eight months. D. D.

these comes with the advent of June. The late spring-flowering plants are passing, and the summer flowers are coming, but, as yet, scarcely come. Buds and promise everywhere, but all the same this slight pause. The Lupines fill the gap: it is their flowering time. Every year, as it comes round, the value of them is emphasised, as I find them in great quantity in the garden until I have come to set quite an especial value on the Lupines among the hardy perennials, and I am not thinking so much at the moment of the tree Lupines as of such varieties as *L. polyphyllus* and its different strains, *L. perennis*, and *L. subcarnosus*. The weeks go by, during which the *Delphiniums* and early-flowering *Campanulas*, *Rhaphanum*, and other perennials are in their full beauty. Their day is over—again comes a perceptible, though a short, pause. But this pause is the flowering time of *Achillea ptarmica* fl. pl., so that it, too, I have come to regard as one of the indispensable plants for the summer garden. It flowers over so long a period, and it so charmingly fills the gap, that it seems to me to be well worthy of a choice position and good cultivation. It does well in ordinary garden soil, especially if it be of a loamy nature, but I have always found that it flourishes in positions that are not too hot and dry. This is easily accounted for, as the roots are close under the surface, and the plant does not thrive in too hot an aspect during long droughts on that account. The variety known as "Snow-ball" is excellent. *Practical Gardener*.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Odontoglossum house.—At the coolest end such species as *Odontoglossum Edwardii*, *O. ramossissimum*, also *Oncidium tetracopis*, *O. loxense*, *O. serratum*, *O. monachicum*, *O. macranthum*, and its distinct variety *nanum* thrive well. The new growths are now making considerable progress, and several species have their flower-spikes well advanced. Afford these plants plenty of water at the root, or the pseudo-bulbs will, in some cases, shrivel under the strain imposed by the growth of the flower-spikes and consequently fail to expand some of their flowers. The aerial roots of the rambling *O. zebrinum*, and those of the new *O. Clavianum* should be sprayed over several times each day whenever the weather is bright. *Lycaste Skinnerii* and its varieties also thrive well in this house. As the plants pass out of flower, let them be examined in order that those needing re-potting may be given attention. They succeed well in a well-drained compost of fibrous loam, peat, and sphagnum-moss. Growers should be careful not to bury the base of the young growths too low in the soil, or they may decay. For several months after root disturbance water should be applied sparingly, reserving an abundant supply until new roots are seen pushing through the compost and growth is luxuriant. During the growing season these *Lycastes* are sometimes attacked by a small species of red spider, therefore it is advisable to wash the leaves occasionally as a preventive.

In the intermediate house plants of *Cœlogyne cristata* and its varieties are starting to grow. Any overgrown specimens may now be divided and re-potted, and plants requiring more room for extension should also be attended to at this season. Pots or shallow pans are suitable for *Cœlogyne*s; but whatever receptacle is used it should be well drained. A compost of peat, fibrous loam and sphagnum moss will suit the plants, adding sufficient small crocks to keep it porous. Specimens which have been broken up and re-potted require very careful treatment; the pseudo-bulbs usually shrivel slightly after root disturbance, but it is not advisable to saturate them with water at the root in order to keep them plump, it being better to spray them overhead occasionally and to shade them from all direct sunshine. Plants of *Miltonia vexillaria* that are growing well and developing flower-spikes should be copiously supplied with water whenever the compost appears dry. Small, weakly plants should have their flower-spikes removed immediately they appear. The distinct

hybrid, *M. Bleuana*, and its variety, *nobilior*, are now in bloom. Do not spray the flowers, and they will then remain fresh for a long time. The Brazilian *Miltonias*, as *M. spectabilis*, *M. Moreliana*, &c., are growing freely, and will require to be kept moist at the root. Prevent over-wetness or the young growths will rot and disease ensue in the bulbs.

Odontoglossum citrosimum has now passed through its resting season, and no amount of dryness at the root will cause plants to flower that have not been properly rested. Let these plants be suspended well up to the light in the Cattleya or Mexican house, and kept well supplied with moisture all through the growing season.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Devon.

Gooseberries give every promise of yielding a full crop, but a severe frost has been known to destroy most of the tiny fruits even later than this date; therefore, it would not yet be safe to say that they are out of danger. This is not all, for the *Gooseberry* caterpillar or saw-fly frequently attacks the bushes, and if left unmolested for long, completely riddles the foliage, which naturally causes the fruit to fall. If the pest is taken in hand immediately the larvæ can be seen, we can soon clear the bushes of this pest; but as the eggs are laid on the under side of the leaves, an observant eye is necessary to detect them before much damage is done. Examine the bushes, therefore, at short intervals. By persistent hand-picking every other day or so for a week, we are always successful in saving the bushes from suffering much injury. It is a tedious job, but it is time well spent. Finely sifted lime and soot dusted over the bushes when the leaves are wet has been a success, but if the fruit is of much size when this is done, they will require to be washed before they are sent to the kitchen. Hellebore powder has also been effectual, but as this is poisonous, much care is required that the fruit is made perfectly clean before using. Paris Green and London Purple have been used with more or less success, but both are extremely poisonous.

Apple trees and their enemies.—The two most dreaded pests are the Apple blossom weevil and the Apple sucker. The former appears early in May as the weather becomes warm, and attacks the flower buds before they are fully expanded, causing the petals to turn brown. These, if minutely examined, often contain the yellow pupa of the weevil, and on comparatively small trees this may be easily exterminated by the hand, but on large trees this would be out of the question. It may be hoped that winter spraying will eradicate the pest if carried out periodically. The Apple sucker, as its name implies, imbibes all the juice it can get from blossoms and buds, causing the same to decay and fall off. The small holes in the flower buds and petals denote the presence of this pest. Spraying with quassia extract at about 4 p.m. in the day will, to a certain extent, lessen the attack, the bitterness of the wash making it unpalatable to this pest.

Protection of blossom.—The decided change to milder weather will be welcomed by all fruit cultivators, enabling them to dispense with the protecting material over Apricots and Plums; as well as Cherries growing against warm walls. Where glass copings are in use these may be left for another week, and it is best to remove part at a time in case a check may be caused to the trees. There need be no hurry about the Peach wall, unless very warm weather sets in, although the leaves which are clean and healthy will now shelter the small fruits more or less from late frosts and cold storms.

Thinning and disbudding.—Continue the removal of superfluous shoots on Apricot and Peach trees, and the thinning out of the fruits, but do not thin Peaches and Nectarines severely at this date. Should the black aphid be present, the trees may be safely syringed with quassia extract on a mild afternoon, washing this off next morning with clear water before 9 a.m., remembering that foliage and fruit alike are both tender as yet, so that weak doses only ought to be applied, and these should not be applied with much force from the syringe.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Muscat Grapes which have a fairly good "set" and are swelling their berries very evenly should have the atmospheric temperature raised to 65° Fahr., or even 70° on very mild nights. Close the house early in the afternoon when the thermometer registers 90° of sun-heat. Keep the atmosphere of the house moist by damping the paths and borders in the morning and again at closing time. Admit air by the top ventilator only. Open the ventilator very little in the morning as soon as the inside atmospheric temperature is over 70°; admit more air as the day advances. Avoid opening the bottom ventilators thus early in the season if possible, as this would favour the spread of red spider and tend to produce leaf-scorching by causing too rapid evaporation. Before thinning out the berries, tie up the shoulders of the bunches with small strips of matting. When thinning, run a small strip of matting through the bunch to enable the operator to hold it in position. Always commence thinning from the point upwards, first cutting out all the small and stoneless berries; do not thin too severely. Muscat should not be thinned until it can be detected which berries will fail to produce "stones," it being desirable to remove all such berries. Pinch the sublaterals and tie in young growths wherever there is space and light for them. If the borders are found to be dry, remove the mulch to one side, apply a good dressing of a fine-grade vine and plant-food and afford a plentiful supply of tepid water.

Black Hamburgh and Madresfield Court Grapes.—Late vines now coming into flower must have an atmospheric temperature of 70° at night during mild weather. Close the house early in the afternoon when the temperature is 85°. Keep the atmosphere dry. Admit air cautiously, and only by the top ventilators. Give the cane a good shake with the hand at mid-day to disperse the pollen throughout the house. Black Hamburgh sets its flowers so easily that the vines do not need so much attention in this respect as is given to many other varieties.

Late vines of the varieties *Lady Downes*, *Lady Hutt*, &c., now breaking strongly, must have the points of the shoots pinched at two leaves beyond the bunch and the sublaterals pinched at the first leaf. Do not be too hurried in tying down the shoots to the wires, as they are so easily turned out of their sockets. Damp the ground surface twice daily and keep the atmosphere fairly close. Maintain the atmospheric temperature at night at 65°, and at 85° by day, closing the house early in the afternoon.

Young vines that were planted out in March will now be making good growths. Pinch the leading shoot when it has made growths 4 feet in length, and afterwards allow it to run to the top of the house, pinching all laterals beyond the first leaf, unless the vines are weak, when they must be tied in. Admit air freely that the vines may make hardy and short-jointed growth. Maintain a humid atmosphere. Close the house early with sun-heat

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Bowling greens and tennis courts.—The beginning of May is the usual time for the opening of bowling greens and tennis courts. The provision of ground for the purposes of bowls and tennis in public parks is not so general as might be expected. From a number of enquiries, however, that we have recently received from other towns, the popularity of these pastimes—especially bowls—seems to be increasing, and park authorities are apparently awakening to the fact, and are trying to meet the demand for proper facilities. It is now generally recognised that public bowling greens or tennis courts, to be of the greatest value to the greatest number, must be so managed that everyone playing upon them should pay a small fee for doing so. The advantage of this, from the standpoint of the public, is that all the apparatus needed for playing the game is found for them. Persons who cannot afford to pay for membership of a club, or purchase the requisites for the game, can on such greens get ample recreation and amusement for a very small outlay. From the administrative point of view this system of management means better control, and, further, that as a revenue is derived from the greens, a

great deal more care and attention can be bestowed upon their upkeep, resulting in greater satisfaction being given to those patronising them. Generally speaking, a free bowling green or tennis ground is only of use to a select few or a club, whereas the grounds where small fees are charged are practically open to all comers.

Necessary rules.—Public greens, to be a success, have to be managed under a set of good and comprehensive rules, which should always be strictly enforced. The rules must be of a two-fold character—the first having as its object the protection of the ground and the apparatus belonging to it; the second the convenience and help of the public using the ground. In the first case every precaution must be taken to prevent excessive wear and tear of the greens, hence it is necessary to stipulate that none but actual players shall be allowed upon the ground; that all players must use indiarubber-soled boots or shoes; that no umbrellas or walking sticks shall be taken on the greens; and, lastly, that no play shall be allowed during unfavourable weather.

Regulation of players.—To enable the greatest number of persons to use the ground at one time, eight players in the case of bowls and four players in the case of tennis should be the recognised number of a rink or court. No player should be allowed to play for more than one hour at a time if others are waiting to use the ground. The charges made for the use of bowls vary in different towns, but are from 1d. to 2d. per hour for each person. For tennis courts 2d. or 3d. an hour is charged per person, and if rackets and balls are supplied each player pays an extra fee of 2d.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Brussels Sprouts.—The first batch of these that were sown early in February will now be large enough, and should be sufficiently hardened for planting out in their permanent quarters. Plant them in drills drawn at from 2½ feet to 3 feet apart, and put each plant at 2½ feet distance from its neighbour. Ground which has just been cleared of late Turnips, and well manured, would provide a good site for this crop.

Celery.—The earliest plants will soon be large enough for planting out in the trenches, and they may be put out as soon as they are considered to be in a fit condition. If the plants were allowed to become starved, or overcrowded before transplantation, they would be more liable to bolt than those given timely attention. Those plants intended to form the main crop will now be ready for pricking off into a cold frame. Employ good, rich soil, with a good layer of decayed cow manure at the bottom. The depth of the combined compost need not exceed 4 or 5 inches, but care must be taken to keep it in a moist condition. When the time arrives for planting them in the trenches, the young plants will be furnished with an ample quantity of roots. These should be disturbed as little as possible in order to avoid causing the plants unnecessary check. If a liberal sprinkling of soot is applied both at pricking-out time and again when the plants are put into the trenches, it will act as a preventive against the Celery fly, which is often troublesome soon after planting time and again after the work of earthing-up has commenced.

Runner and French-climbing Beans.—Sowings should now be made in the open ground of such excellent varieties as Hackwood Park Success and Scarlet Emperor. The former is a good standard variety, and the latter, of more recent introduction, is one of the finest novelties ever introduced. It is advisable to afford the plants some protection as soon as they appear above ground, and it may be required until the end of May. Much bitter disappointment has been experienced during the last two or three years owing to this type of Bean having been cut off by the severe frosts late in May. By sowing the seeds thinly in boxes, and cultivating the young plants in a cold frame, such disappointment may be averted, for strong plants may be thus raised, which will be ready for planting out as soon as all danger from frost is considered to be past. With ordinary care Beans may be lifted and transplanted most successfully.

Globe Artichokes.—There is still time to plant suckers of these, if this work has been delayed. From plantings made even late in May, that have been mulched and kept well watered, we have had a good supply of "Chokes" late in the autumn, long after plants that have been fruiting through the summer have ceased to be productive. It being usual to allow these plants to occupy the same site for several years in succession, the ground should receive a thorough preparation previous to planting. Put out the plants at distances of 4 feet each way.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Chrysanthemums.—Re-pot the plants before the roots become pot-bound, otherwise they will suffer a check to growth. The compost should consist largely of good turfy loam, adding leaf-soil and sand. Make the compost firm about the roots, for loose potting, especially if the soil is very rich, tends to encourage rampant growth, instead of the sturdy, short-jointed shoots so much desired. Return the plants to the frame, and admit air at all times, keeping the lights off altogether on suitable days. If it is imperative to place some of the plants outside, arrangements should be made to cover them when necessary with spare lights, boards, and mats in order to protect them from hailstorms and frosts.

Climbing plants in houses.—Examine these at regular intervals, not allowing the new growths to become entangled, but thinning them out and pinching them as required, tying in a sufficient number to furnish the desired space, and if head-room permits, allowing the lateral growths to droop downwards in a natural manner. Stephanotis, Dipladenias, Cissus discolor, and similar climbers will thus show to better advantage than if trained stiffly along the wires. Young plants should be potted on before there is any check to growth, while established plants should be stimulated by an application of some approved fertiliser. Strong growers like the Allamandas require frequent and abundant supplies of water. Insect pests must be rigorously combated, or they will soon become an intolerable nuisance. Bougainvilleas should be given an exposed sunny position. The plants flower much better from well-ripened wood of the previous year, and the bracts are of a much better colour than when grown in comparative shade.

Caladiums.—Re-pot these as required, giving liberal shifts to any that it is desired to grow into large specimens. Use a rich, porous compost, and provide the pots with perfect drainage. Caladiums require stove temperature, and the syringe should be used freely to maintain a damp atmosphere. Keep the plants well up to the light in order to develop the beautiful marking of the foliage, but provide shade during the hottest part of the day. C. argyrites and C. minus erubescens are two useful varieties of dwarf growth for the edging of decorative groups or stages in warm plant houses. For such purposes, pots 3 or 4½ inches in diameter are large enough for these varieties.

Gloxinias.—Afford plenty of room, and keep well up to the light the early plants now showing bloom. If the pots are filled with roots, apply a gentle stimulant. Re-pot the batches of seedlings as required.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Wall-plants.—The shoots of Clematis require to be frequently regulated or most of the bloom will be massed at the top, leaving the lower portion bare. All wall-shrubs of doubtful hardiness should have their growths kept thin so that they may become well ripened and better able to withstand a hard winter. Roses will need spraying or syringing to kill green fly. Soapy concoctions stain the walls and leave unsightly deposits on the leaves. Quassia chip water has neither of these defects, and not only kills the fly, but leaves its bitter property behind, which is unpalatable to the next generation of aphids. Occasional searches should be made for the Rose maggot, squeezing the curled leaves, and removing any flower buds which have been pierced.

Camellias.—Established bushes should be afforded every three or four years a top dressing, which may consist chiefly of fibrous loam, with a little leaf-mould, sand and bone-meal added. In the other years a dressing of artificial manure should be given. The Camellia is harder than many people imagine, and, in a favourable flowering season, such as the present one, good-sized bushes in the open are a revelation. An ideal spot for their culture would be a gentle slope to the south or south-west, sheltered from rough winds. The semi-double and single varieties are better than the double forms for culture out-of-doors, as the double flowers hold the rain and quickly decay. Lavinia Maggi, reticulata, japonica, Donkelaarri, and Matnotiana may be recommended. The best time to put out pot plants is just as they have finished their growth.

Wild garden.—While, on the one hand, ostentatious tidiness is undesirable, this part of the garden must not, on the other hand, be allowed to degenerate into a wilderness. All coarse weeds must be hooked out, and vigorous growers—especially those of the Rubus genus—which are occupying too much room must be restricted. This is best done by cutting away whole branches or growths, rather than by pruning. Bulbous and shrubby plants which have been forced and are not required again for culture indoors may be planted in the wild garden, taking care not to leave more evidences of soil disturbance than can be avoided.

Bedding plants. should now be removed to cold frames, affording them as much air by night as well as by day as can be safely given, so that the plants may become thoroughly hardy before being planted in the flower beds. At first all necessary watering should be done in the mornings; if the surroundings are fairly dry a low night temperature is less harmful than when the atmosphere is charged with moisture.

THE APIARY.

By CHILDIS.

Virgin queens.—One means the bee-keeper may employ for the cutting down of expenses, with very little degree of danger to efficiency and success, is to purchase virgin queens. It is very expensive to buy fertile queens, while the virgins may be bought at a very low figure, for so many of these can be raised with little difficulty by the queen-raiser, but the fertile ones are fewer. The reason few virgins are bought is because the purchaser is afraid that they will not be mated. There need be no doubts on this head if they are purchased from a reliable source. No queen-raiser who hopes for success in business would dream of sending out those queens that have passed the period when successful mating can be expected. The one thing that should ensure the success of the system is that virgin queens are so very easily accepted by a queenless colony if care be adopted. The queen to be introduced ought not to be more than two or three days old if complete success is to attend the effort.

How to make nuclei with virgin queens.—Take about three combs from established colonies, such combs as contain sealed brood, but neither eggs nor larvae from which queens could be raised. The combs, with their adhering bees, taking care there is no queen among them, should be removed about mid-day and placed in a hive at a distance as far as convenient from the old stand, and the entrance must be closed. In the evening the entrance may be cautiously and noiselessly opened, and the box containing the new sovereign may be placed at the opening and she will go among the cluster almost unobserved. I advise noon for the removal of the combs because most of the field bees will be from home. When many queens are hatching, if a cage be placed over each ripe cell, many valuable young queens may thus be secured from one's own apiary and utilised in the same manner, if the bee-keeper purposes increasing his stocks.

Dysentery.—Bees suffering from this trouble should be changed to a clean hive and be given fresh quilts.

Robbing.—At this season, when there is little nectar to be gathered, bees from strong colonies will often attack those that are weaker; therefore, keep each colony as strong as possible, and spill no syrup about the hives. Should there be a tendency to robbing, cease feeding for a little time, and close all entrances, so that one bee only may leave the hive at one time.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MAY 4—

Dresden International Hort. Exh. (May 4-12).
Soc. Franc. d'Hort. de Londres meet.
German Gardeners' Soc. meet.

TUESDAY, MAY 7—

Mannheim International Exh. of Orchids (3 days).
Scottish Hort. Assoc. meet.
Nat. Amateur Gard. Soc. meet.

WEDNESDAY, MAY 8—

Roy. Caledonian Hort. Soc. Sh., Edinburgh (3 days).

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—51°0'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 1 (6 P.M.): Max. 52°; Min. 41°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 2 (10 A.M.): Bar., 29°8'; Temp., 55°; Weather—Bright.

PROVINCES.—Wednesday, May 1 (6 P.M.): Max. 51° Ireland S.; Min. 45°, Blackpool.

SALES FOR THE ENSUING WEEK.

TUESDAY—

The beneficial interest in the lease of Kew Nursery, Stanmore Road, Richmond, Surrey, comprising Green-Houses, Piping, Boilers, Buildings, &c., on the premises, by Protheroe & Morris, at 12.

TUESDAY AND WEDNESDAY—

Duplicate Plants from the "West Bank House" collection of Orchids, at West Bank House, Heaton, Mersey, by Protheroe & Morris, at 1.

The whole of the stock of Palms and Plants, Utensils, &c., at Kew Nursery, Stanmore Road, Richmond, Surrey, by Protheroe & Morris, at 12.

WEDNESDAY—

Herbaceous and Border Plants, and Bulbs, Palms, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

FRIDAY—

Orchids in variety at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Comparatively few botanists and horticulturists of the present day know anything more of Dillenius than that there was such a person. Nevertheless, in spite of the rapid progress of botany along somewhat different lines, the memory of Dillenius is worthy of honour. Botanists have, therefore, cause to thank Mr. Claridge Druce, the curator of the herbaria in the University of Oxford, for a book* recently published by him, and to which the present Professor of Botany has affixed an introduction.

Dillenius was the contemporary of Ray and of Linnæus, and although he did not rise to their level, his merits amply entitle him to be mentioned in association with them. From a botanical point of view, his work among the cryptogams, especially the mosses, was the most important, but to horticulturists he is best known by his *Hortus Elthamensis*, the figures of which are still valuable. This was an account of the plants growing in the garden of James Sherard, the brother of his friend and patron, William Sherard. The last named left his books and the sum of £3,000 to the University to found the Sherardian Professorship of Botany, at

the same time indicating Dillenius as first Sherardian Professor. The *Hortus Elthamensis* consists of two folio volumes, published in 1732, with over 300 plates, many of them devoted to the illustration of Mesembryanthemum and other succulent plants. The book before us contains, as has been mentioned, an introduction from Professor Vines, in which the historic value of his predecessor's researches among the mosses and other cryptogams is clearly set forth. Then follows a biography of Dillenius, a list of his published works, a selection from his correspondence, and an account of the plants in the herbarium. This account must have demanded an immense amount of labour and watchfulness in its compilation, and great judgment in determining the nomenclature and its relation to that now in use. Incidentally, we may mention that Dillenius was the first to propose the genus *Narcissus*. The species he mentions are *N. pseudo-narcissus* and *N. biflorus*, both indicated by the binomial system in vogue before Linnæus adopted and rendered popular the binomial system of naming plants, than which he rendered no more signal service to botany. A copious index completes the work. We can but congratulate Mr. Druce on the completion of this formidable task, and if it is not too much to expect, we hope he may find leisure to give us similar synopses of the works of Sherard and Sibthorp.

OUR SUPPLEMENTARY ILLUSTRATION to the present issue is reproduced from a photograph of part of the interior of the Number 4 plant-house at Kew, commonly termed the greenhouse. It is a large + shaped house having a span roof, and is devoted all the year round to the exhibition of temperate plants in flower. There are a few beds extending along the centre of the house, in which *Camellias* and many other foliage plants are planted out. Amongst these are placed from time to time specimens cultivated in pots, and smaller plants are arranged on the shelves at the sides of the structure. Numerous species of climbing and trailing plants are trained under the rafters and allowed to droop over the pathways. Our photograph was taken when the Indian *Rhododendrons*, Japanese *Pæonies*, *Eupatoriums*, and other spring-flowering plants were in full bloom. Fuller notes of the plants now blooming in this house appear on page 280.

THE NATIONAL CHRYSANTHEMUM SOCIETY.

—The schedule of prizes and list of members for 1907, as well as the annual report for 1906 of this society, have lately been issued. It is proposed to hold three exhibitions and a market-show this year, as in previous seasons. The society is considered to be in a satisfactory condition financially, and an increase in the number of fellows and members is desired to still further increase its working powers.

FLOWER SHOWS AT BIRMINGHAM.

—Two summer flower shows were held at the Botanical Gardens, Edgbaston, last year under the auspices of the Birmingham Botanical and Horticultural Society, and at a recent meeting, presided over by the chairman, Mr. NEVILLE CHAMBERLAIN, it was decided to hold two similar shows this season, one on June 12 and another on July 8. The committee is very grateful to those exhibitors who supported the shows last year, and will be glad to welcome them and others on the dates mentioned. The hon. secretaries are Mr. T. HUMPHREYS and Mr. W. H. WHITELOCK.

THE CORRUPTION BILL.—Mr. J. M. HENDERSON, at a recent meeting of the House of Commons, asked the President of the Board of Trade whether he was aware that, consequent upon the provisions of the Prevention of Corruption Act, 1906, and the action of various trade-associations in making public the provisions thereof, offers of secret commission to agents were now being extensively circulated in this country from firms writing from abroad, the offer in some cases amounting to a very large percentage on the amount of the order sent to the foreign firms in question, whether he would give the matter his attention at the earliest possible opportunity. In reply Mr. LLOYD GEORGE said: My attention has already been called to this matter, and a notice was published in the *Board of Trade Journal* for February 21 last, in which it was pointed out that the acceptance of any such offers from foreign firms renders agents in this country liable to penalties under the Act. I trust that the efforts which I understand are being made by various associations of British traders to put an end to the practice will be successful.

SURVEYOR'S INSTITUTE.—The next meeting will be held on Monday, May 13, when a paper on "The Prevention of Corruption Act, 1906," will be read by Mr. MAURICE L. GWYER, barrister-at-law. The council have accepted an invitation from the Scottish Committee of the Institution to hold the next country meeting at Glasgow on May 23 and 24. Visits have been organised to various works and places of interest in Glasgow, and the Clyde trustees have allowed the use of a steamer for viewing the harbour and shipping yards. Various excursions have also been arranged. An afternoon reception will be held in the gardens of the Royal Botanic Society, Regent's Park, on Tuesday, June 18, from 4 to 7 p.m. Particulars will be issued shortly.

METEOROLOGICAL NOTES FROM GLASGOW.—

Mr. JAMES WHITTON publishes, as in former seasons, his meteorological notes and remarks upon the weather during 1906, with its general effects upon vegetation. These notes are compiled from the records kept at Queen's Park, Glasgow. Briefly summing up, it may be stated that the promise given by a previous year of favourable weather was but partially fulfilled, sudden atmospheric changes causing much disappointment. A cold spring with a disastrous hailstorm in May checked early growth, and it was not until June that much recovery was noted. Hay crops and cereals and root-crops were, on the whole, up to average, while most trees and shrubs did well, save those damaged after growth was started. Although the present season seems not so promising as last year appeared at first to be, there is yet sufficient display of buds to ensure good results unless again unexpectedly checked.

BERLIN.—A great international horticultural exhibition will be held in Berlin in April, 1909, under the auspices of the Verein zur Beförderung des Gartenbaues in den preussischen Staaten. All enquiries should be addressed to the General Secretary of the Society, Invaliden Strasse 42, Berlin.

THE NEW ZEALAND INTERNATIONAL EXHIBITION, 1907.—

Messrs. SUTTON & SONS, Reading, have been informed by cable that they have been awarded by the jurors four gold medals for their exhibits of samples of their pedigree stocks of farm seeds, vegetable seeds, flower seeds, Potatoes; models of various types of Mangels, Swedes, Turnips and vegetables; specimen bunches of Grasses for temporary and permanent pastures; horticultural requisites, cutlery, &c.

* The Dillenian herbaria, an account of the Dillenian collection in the Herbarium of the University of Oxford, together with a biographical sketch of Dillenius, selections from his correspondence, notes, &c. By Claridge Druce, M.A., edited, with an introduction, by S. H. Vines, M.A., F.R.S., Sherardian Professor in the University, Oxford, at the Clarendon Press.



Photo by E. J. Wallis.

VIEW IN THE GREENHOUSE, No. 4, KEW, AS IT APPEARS IN APRIL.

THE SEEDLESS APPLE.—The following is an extract from a "warning" by L. R. TAFT, of the Michigan Agricultural College, addressed to the farmers of that State, but of interest to all nurserymen, and reprinted in the *Weekly Florists' Review*: "From various sources it has come to me that agents of a certain company have been taking orders for the seedless Apple, and that many farmers and fruit-growers have agreed to take one or more trees at 2 dollars each. They have been led to do this by the representation that the fruit, in addition to being large in size, handsome in colour, fine of texture, and of delicious flavour is coreless, seedless, and free from the attack of the codling moth and frosts. I have been watching this variety for the last three years, and am convinced that it is in every way inferior to our common varieties which can be obtained for 10 or 15 cents each. The State law requires that every person selling nursery stock in Michigan shall take out a license. Sellers who omit this precaution are liable to incur the penalties of the law."

GARDENING AT THE ZOO.—It is pleasant to note, in the recently-issued annual report of the Council of the Zoological Society, a well-deserved tribute to the energies of Mr. J. YOUNG, garden-superintendent, who has almost completed his 27th year of office. During the past year the opening of the new section of the gardens—part of which accommodated the PRINCE OF WALES'S collection of Indian animals—entailed much work which had to be accomplished in a short time, yet this was successfully effected. The new part of the gardens promises to be the most picturesque part of all, and there is already a goodly show of spring flowers both in this and in the older portion of the grounds.

HOW TO STUDY WILD FLOWERS. By the Rev. GEORGE HENSLAW, M.A., &c.—This is the third impression of this hand-book, thus proving that it has already made its way into popularity. The information is clearly, and, of course, accurately given, and there are many illustrations, some of them coloured. While useful to those who have no other guide this book will also be found serviceable to tutors for reference, and to assist them, as the writer says, in "training the young mind in systematic observation and accurate habits." The appendix describes the coloured plates, and there is an index of the genera of the plants mentioned. *How to Study Wild Flowers* is published by the Religious Tract Society, 4, Bouverie Street.

THE BOOK OF THE OPEN AIR.—The second part of this handsome book is to hand, and should please every lover of the country. The contents include a diary for May; a paper on the "Making of Scenery," by EDWARD CLODD; "Life-story of a Badger," J. C. TREGARTHEN; "Some May Flowers," by Canon VAUGHAN; "The Bee Mind," GEORGE A. DEWAR; "Story of some Pebble Hills," by W. JOHNSON, &c. As these are accompanied by several coloured plates from drawings and photos., it will be seen that various phases of open-air life are considered. The letterpress is light and readable, and encourages the observation, not the destruction, of our country-side creatures.

NATURE'S OWN GARDENS. Written and illustrated in colour and line by MAUD U. CLARKE. (London: J. M. DENT & Co.; New York: E. P. DUTTON & Co.)—Nature's own gardens are, of course, those not merely beautiful, but effective masses of flowering plants that best lend themselves to description and illustration. We are told here about some of the flowers that pass in long procession through the year, especially through the warmer seven months of it, and attention is rightly enough called to the inconspicuous beauties as well

as to the more showy glories. For coloured illustrations the writer has chosen the bolder measures; a golden page represents marsh Marigolds and bitter Cress, a brown and blue effect is called Forget-me-Not. Frankly, the many large plates are illustrations of general effects rather than careful or minute studies of nature's gardens. The black and white sketches found here and there throughout the pages are more satisfactory, for accuracy of form has not been sacrificed to colour effects. The letterpress has no pretensions to being instructive. The writer loves her flowers, and would fain have others share the admiration that ever rises new within herself at the sight of country-side pictures. This is comprehensible, and we hope readers will not be satisfied without also observing for themselves now that yet another book is pointing them in the right direction. We also agree that many more of nature's plants might be admitted into our own artificial gardens, but it is well to know which to exclude owing to their probable rampancy, and also how to group the others. To mix Cow Parsnip and other hedge-row friends with rose-coloured Phloxes would satisfy a love for contrast rather than that of harmony or appropriateness, while double red Daisies may not look their best by the water-side among their wild relations. It is somewhat of an infringement in *Nature's Own Gardens*, which we have just been told are so perfect. The Anemone wood in April, the Bluebell carpet in May, the Cornfield, the Primrose banks, the summer river—these are all of nature's planting (as regards the wild-flowers within, of course)—but "when each and all of the nature gardens are so lovely in their own particular way it is unwise to show partiality, and yet there is something dangerously like it, if I say that the garden of the Grass-fields in June seems to hold the largest possibilities of any. Towards the end of the month there is such a flower show that is hardly repeated during the year in any other situation." Many will quite endorse the writer's opinion.

BRITISH PLANTS.—From the Department of Botany of the British Museum (Natural History), Cromwell Road, London, S.W., comes a *List of British Seed-Plants and Ferns*. Those who are familiar with the old London catalogue will be glad to possess a new list framed in accordance with the latest official pronouncement at Vienna. It is of no use offering any criticism upon a *res judicata*, but, at any rate, we may point out that one of the main rules laid down to be followed is that which prescribes that the earliest specific name is henceforth to be adopted, no matter under what genus that name was first used. In this country we have been in the habit of accepting the specific name given by that author who first placed the species in the correct genus. Finality in this matter is, we fear, unattainable, and uniformity of practice hardly less so, but this "list," prepared by Dr. RENDLE and Mr. BRITTEN, will, at any rate, contribute towards these most desirable objects. The arrangement of the orders is that of *Bentham's Handbook*, whilst for the limitation of genera and species Messrs. GROVES' edition of *Babington's Manual* as the most recent descriptive British flora has been followed. Cross references are made to the latest editions of (i) *Bentham's Handbook*; (ii) *Hooker's Students' Flora*; and (iii) *Babington's Manual* in those cases where the name adopted in the present list does not correspond with that in one or other of the books just mentioned. This must have been a troublesome piece of work, and one beset with pitfalls, for, without critical comparison of type specimens—not always practicable—it is, we suppose, quite impossible to avoid error, and to assert positively that any given name is actually synonymous with that proposed by some former authority. To illustrate the plan fol-

lowed by the compilers, we may say that *Clematis Vitalba*, which heads the list, is adopted by all the authorities, and, therefore, no cross reference is required, but *Thalictrum majus*, of Crantz, has the figures I. and II. placed after it to show that the same plant is included under *Thalictrum minus* in (i) *Bentham*, and (ii) *Hooker*. In the old London catalogues the species were all numbered consecutively, which greatly facilitated the arrangement of the specimens in the herbarium. In the present list only the genera are numbered, but as a rule not the species. Within the limits of some of the genera, however, the species are sometimes numbered, as in *Sedum*, the species of which are numbered from one to eleven. In *Ceanothe* no numbers are affixed to the species, and so with many others. We have not discovered the reason for this diversity of practice. After all, general usage and convenience will prevail over the rules of strict priority, at least for some generations to come. We can hardly imagine, for instance, the common white Water Lily being generally called *Castalia alba*, a name proposed by GREENE as lately as 1888, or that the common yellow Water Lily will henceforth be generally known as *Nymphæa lutea*, or that the Winter Aconite will henceforth be known as *Cammarrum hyemale* of GREENE. These changes may be quite justifiable from some points of view: we are not attempting to dispute their legitimacy, but they are certainly inexpedient, and their most appropriate place would be among the list of synonyms, with an indication of the date. A list of the kind prepared by Dr. RENDLE and Mr. BRITTEN is most serviceable, and will, we hope, save much time and research to future students, who will be able to devote themselves more completely to the study of the plants themselves, and less to the unravelling of the opinions and practices of those who wrote about them in past times. In saying this, we by no means wish to derogate from the importance of historical research, which, arid though it looks, is often fascinating, but to emphasise the fact that for the average student it is of more importance to study the plant itself, and of less value to disinter the ancient literature relating to it.

THE ELKS HORN FERN (PLATYGERIUM ALOIOERNE).—All Fern cultivators are familiar with this species, with its broad, sterile fronds placed in a different plane from that of the much-lobed fertile fronds, which bear their spores on the lower surface. M. POISSON, in the *Bulletin of the Botanical Society of France*, describes and figures a case in which the ordinarily sterile frond bears spores upon its upper surface and is directed upward.

PLANTS OF THE HOLY LAND.—A new work entitled *The Flowers and Trees of Palestine*, by Miss AUGUSTA A. TEMPLE, is announced for early publication by Mr. ELLIOT STOCK. It will contain a description of the flora of the country, with some 40 photographic illustrations of the chief examples mentioned and a full glossary of plant names.

SLUGS.—M. H. DU BOYSSON, as cited in the *Moniteur du Jardinier*, speaks very highly of the use of sulphate of iron, green vitriol. The crystals are scattered freely on the soil. The result is that the slugs are annihilated and the plants uninjured.

SEEDLESS COCOA NUT.—Whatever may be said in favour of seedless Apples we imagine that seedless Cocoa Nuts would not appeal to anyone but the pure botanist. He at least would be interested in the figures and description given of these productions in the *Agricultural News*, published in Barbados.

NATIONAL FRUIT-GROWERS' FEDERATION.—The annual general meeting will be held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday, May 6, 1907, at 8 p.m. In addition to the routine business to be discharged, Mr. E. S. SALMON will read a paper on "The American Gooseberry-mildew in England: the Present State of Affairs." Lantern slide illustrations of the appearance of diseased Gooseberry shoots and fruit will be given. A discussion will take place on the bearing of the above question on the proposal to form a sub-department of the Board of Agriculture. The subject of "Damage by Wild Birds" will be introduced by Mr. F. SMITH.

ALEXANDRIA.—The Horticultural Society of this town is in a flourishing state, owing to the zeal of Judge SANDARS, the president, and the interest taken in the matter by the English Colony and many of the Egyptian residents, including M. MONFRONT, the superintendent of the municipal parks and gardens. The treasurer is Mr. P. W. CARVER, the head of one of the large cotton mercantile houses. Perhaps the most remarkable feature of the show, which opened on the 20th ult., was the series of beds of Tom Thumb, Phlox Drummondii, exhibited by M. MONFRONT.

MR. McDONALD.—We are informed that Mr. DONALD McDONALD has retired from the position he has held for over 30 years with Messrs. JAMES CARTER & Co. He leaves with the good wishes of all at Holborn and was the recipient of some handsome presents. He will still reside at Bexley Heath, Kent.

AURICULA MISS BERKELEY.

THIS variety of Alpine Auricula is an advance on any previous variety of the white-centred type. It is rather curious that all the white-centred varieties have purple, maroon purple, lilac, or bluish tints, while the yellow centred varieties are all of crimson, reddish crimson, and red of various shades. They all have shaded edges, whether they are gold-coloured or white, and there ought to be no powder on the flowers, such as is always present on what the fanciers term the "show" Auriculas. The variety Miss Berkeley is one of a large number of seedlings raised by Mr. J. Douglas by crossing a variety named Teviotdale with a more recent seedling. It gives a bold truss of flowers on quite an erect, stout stem, which requires no support. The corolla (pip) has a white circular centre; the margin is of maroon-purple at the centre, shading off to a paler tint at the margin.

These Alpine Auriculas are vigorous growers, and well adapted for planting on the north side of a rock garden, or the front row of a herbaceous border. The plants may either be set out singly or in groups of three, or as many as a dozen may be put in a group. The flowers are not so large in size as those grown in flower pots in greenhouses or frames, but the colours are richer and deeper. The Auricula does not need a very rich soil, nor any special mixture. All that is required is a good loam, with a fourth part decayed manure, and some leaf-mould, with a little sand to keep the compost open, if it is not already of a sandy nature.

VEGETABLES.

CUSTARD AND BUSH VEGETABLE MARROWS.

THE Custard Marrow is a delicious vegetable in season from June to November, and with the Custard I have bracketed the Bush, for though quite distinct in flavour, they are somewhat similar in growth. They should both be cooked and eaten when in a young state and before the seeds mature. Many persons grow the ordinary Marrow merely for its size, and when cooked it is cut up, and, of course, for market

supplies it is very useful, because it is capable of standing much rough usage. For home supplies, however, the smaller Marrows are far preferable to the ordinary vegetable Marrow and quite superior in flavour. Most of the Custard and Bush Marrows are compact growers, but

medium for these plants, and I have often seen them planted on large masses of manure. Grown thus, in a wet season they make too much leafage, the fruits frequently turn yellow and drop before they are of any considerable size, and the crop is poor. My best results from

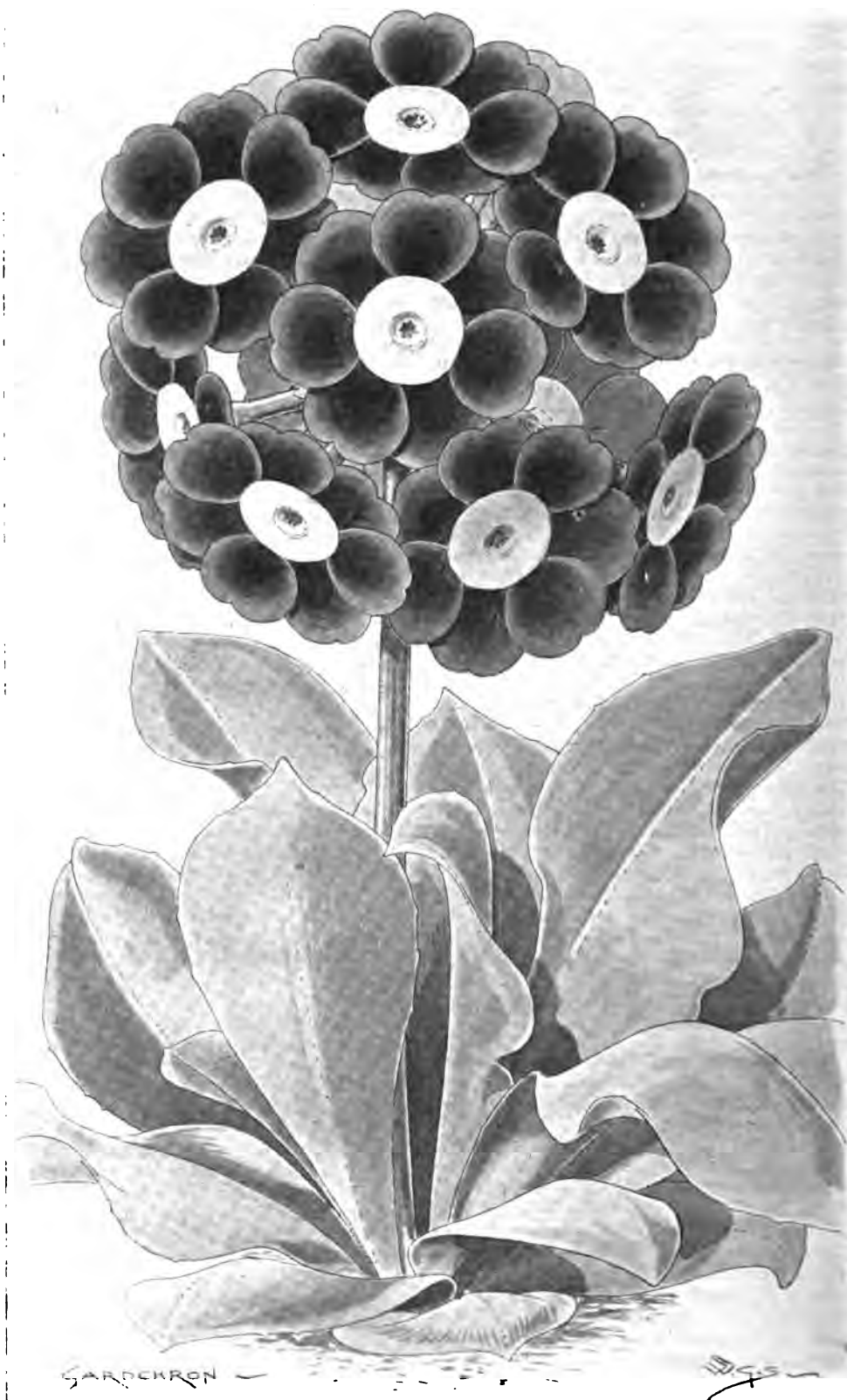


FIG. 119.—ALPINE AURICULA MISS BERKELEY: COLOUR OF FLOWERS MAROON-PURPLE AND WHITE.

one of the best, Sutton's Improved Custard, has a trailing habit, and this is a great cropper. I have grown several distinct types from seeds obtained from the Continent, and they were remarkable for their free growth and large leaves.

Many persons provide too rich a rooting

both the Bush and the Custard varieties were obtained by planting in the open and giving each plant a little decayed manure and leaving a good space for watering. The Bush forms can be grown somewhat closely together, and in hot weather they greatly benefit by sprinklings of

water given late in the day. This keeps down red spider, one of the most troublesome pests of these plants. For an early crop in frames, these small Marrows are most suitable. Much heat is not required, and the plants resent too close a treatment, which causes failure in the setting of the blossoms. Given ample ventilation, good fruits may be cut in a few weeks from the time the seeds are sown. To obtain a succession, three sowings should be made, making the last sowing late in June. The plants will require some protection at night-time in the late autumn. Plants raised from seeds sown in May or June, and planted out, will give a full summer crop, and will, providing some food, such as liquid manure, be given them, furnish fruits till the vines are cut down by frost in the autumn.

Both the Bush and the Custard Marrows should be cut before the seeds harden; indeed, many persons cut them before the seeds are formed. They are best cooked whole. Bush Marrows are green, white, or yellow, and the fruits are often produced close to the centres of the plants. They are also known as Cluster Marrows. Cut in halves, filled with finely-chopped, highly-seasoned meat, and cooked they make a capital dish. For gardens limited in size, the Bush varieties are most suitable on account of their compact growth and free-bearing qualities. *G. Wythes.*

DAFFODILS AT DITTON.

BEING reminded by Messrs. Barr & Sons that the Daffodils at Ditton were in their full beauty, we accepted their invitation to view them, for although we have for several seasons past journeyed to Ditton at Daffodil season, it has always been an outing of pleasure, and that notwithstanding the somewhat severe climatic conditions we have generally experienced. The wind has always seemed to whistle over the neighbouring railway bank, as though its one object was to shake the countless spear-like leaves and to set the heads a-nodding. The Daffodil has not only to "take the winds of March with beauty," but also the showers of April as well: still the Narcissus in its season of flowering is more independent of fair weather than most flowers; its bulb contains a store of food ready for assimilation, and its pollen is admirably protected from the rain by its coronet. The differences of this latter organ in the various flowers are remarkable, and to it the flower owes much of its charm, but what it exactly represents is a matter of question. As the prevailing colour is yellow, the statement that it represents an additional series of barren stamens may perhaps be the true one; at any rate, there can be no question but that its principal function is protection of the pollen from rain. Even in the Poet's Daffodil the brightly-coloured "eye" acts as a little gutter to exclude the wet. In this section we find the beautiful bright red which has been worked by the hybridist into the yellow of the bigger crowned flowers, and the loveliest shades of orange, apricot, and deep lemon are found in such varieties as Peach, Lucifer, Gloria Mundi, and Firebrand, some set in a white and others in a creamy-white perianth. The purest white of all is found in the starry segments of the true Narcissus—*N. poeticus*, which has received its share of attention in the matter of improvement; and one of the very finest is Cassandra, tall and robust of habit, and with large, spreading segments encircling a broad rim of fiery red—a great advance from the old Pheasant's Eye. Later raised novelties in the same section are Dante, Horace, and The Bride, all great improvements of the type. In contrast to the tiny rim of the Poet's Narcissus is the relatively huge trumpet of the large crowned or Magni-coronati section, some, as in the variety King Alfred, all yellow, others, such as the peerless Weardale Perfection, being white and yellow; and still others, such as

in the magnificent Peter Barr and the newer Mrs. George H. Barr, having almost all the yellow eliminated from both the perianth and trumpet, so that the flower is an albino. The hybridist has evolved flowers intermediate in form in all stages from the tiny crown to the biggest trumpet, and has indeed broken down all barriers between the various sections.

One of the first varieties we noticed was the beautiful bi-colour Madame Plomp, a fine bold flower that holds itself well erect, and displays its golden trumpet to advantage. Duke of Bedford was almost over, for it is one of the earliest of the large trumpet varieties.

Near by was Peach, with its apricot-coloured crown set in a white perianth; and Catherine Spurrell, with citron-yellow cup. Sprightly is a sturdy flower with golden yellow trumpet, a cheap but good variety. Monarch still ranks as one of the best of the large yellow trumpet Daffodils, and in its size and form accompanied with substance has much merit. It was raised at Surbiton, as was also Lord Roberts, which may be described as a glorified Emperor. Mention must also be made of Duchess of Westminster, not new certainly, but one of the very choicest of the Leedsii type, a general favourite and one largely grown for market purposes. In the younger flowers the tube is tinged with orange, that contrasts well with the white petals. A very early flowering variety is Blackwell, of the incomparabilis type, with fluted cup, a flower that remains fresh for a long time when cut. We pass by the big Glory of Leiden, and notice the "Queen" of the white trumpet Daffodils, Madame de Graaff, a variety within the easy reach of all purchasers. All its attributes are good, and there are few Daffodils more beautiful. Another standard variety is J. B. M. Camm, a bi-colour flower, of exquisite and refined shape. It is admirable for pot culture, and is free-flowering either in pots or in beds. Commander is an old variety, but must not be neglected on that account, for it is still one of the best of the incomparabilis type. Ariadne is a beautiful flower with a beautiful name. It has gained numerous awards. Flowering early, it displays an open, soft lemon-coloured cup in a perianth of ivory whiteness. King Alfred we have already mentioned as a large trumpet flower, and it is to be recommended for stiff, damp soils, where it grows to an immense size. It may best be described as a glorified maximus. Then there were also noticed Cleopatra, Seraphim, Eileen Mitchell of the drooping triandrous section, with reflexed perianth of snowy whiteness; Maggie May, a white Sir Watkin; Egret, George Philip Haydon, a fine yellow trumpet Daffodil, new in 1905, sturdy in every respect, and shaded soft yellow; C. H. Curtis, also new, very pretty in the cup, which expands in a broad rim; Royal Star, with flattened eye tinged with red; Cloth of Gold, Shakespeare, Strongbow, Sabrina, and a host of others.

In a wind-screened portion of the nursery are the seedlings, and with what eagerness are they watched to see if some new flower of merit has opened! But novelty raising does not result in so many rewards as formerly, not that good things are lacking, but that it is difficult to surpass those already in existence. Thus in the seed beds we noticed many fine varieties, but being most of them like existing types they would probably be passed over. Still some show great promise, notably a big yellow trumpet Daffodil, of great strength in flower and foliage, and another with a short tube that is frilled to a remarkable degree. Then we also noticed one that seemed an improved Gloria Mundi, with a magnificent coloured tube. But as all the seedlings are unnamed, we must watch for their advent when presented for award before the recognised societies, when their merits will be duly considered and their points compared with flowers of standard form. Messrs. Barr's latest success is in Corallina, a description of which appears in our last issue (p. 273).

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

FRUIT GROWERS AND BAD DEBTS.—A meeting, largely attended by market gardeners of the district, was held at Pershore recently to see what was possible in the way of co-operation and to discuss the desirability of forming an association to protect their interests. The chairman of the Pershore Traders' Association presided, and some interesting addresses were delivered. Mr. S. Hosgood, a leading solicitor in the town, in the course of an interesting speech, said that no pest caused greater damage to the grower than the commission agent pest, who obtained large quantities of goods and never paid for them. He instanced a case where a grower who had spent £65 on labour on the crop sent a consignment amounting to about £80 to an agent in Scotland, who never paid for them. The agent had given the usual banker's reference on his note heading, and on this reference growers seemed to place an enormous amount of confidence—a confidence altogether undeserved. It was, however, perfectly easy for growers to protect themselves. He advocated the drawing up of a white list and a black list, but they must have a committee of growers in the district. There were any number of commission agents who were above suspicion, and they would be glad to see the unscrupulous turned out of the fold. Mr. H. H. Phelps, ex-president of the Birmingham Fruit and Potato Association, speaking as a salesman, said all honest dealers deprecated the presence of the dishonest in their midst. He urged, however, that growers must be fair to salesmen. He favoured the preparation of a black list. Mr. G. F. Hooper spoke against the practice of local salesmen sending out price lists early in the season. If the prices therein were low they remained all the season. Mr. W. J. Gardner remarked that an association of gardeners could do excellent work in many ways, and particularly in the matter of railway rates. Further interesting discussion followed. Eventually it was decided to form a gardeners' association as part of the traders' association. If it reaches large proportions a separate society will be established. There should be no difficulty in this matter, but the gardeners of the Vale are notoriously bad at combination. It may be that there is still a large amount of trade jealousy, but I think this is gradually dying out now that a different class of gardeners are coming into the district. There has been a market gardeners' association at Evesham for some years, but so far as I know it has never seriously taken up matters of this kind. Perhaps the example of Pershore may spur them up. *H., April 27, 1907.*

"GOOD KING HENRY."—This plant is *Chenopodium Bonus-Henricus*, and is widely known as Mercury or Lincolnshire Spinach. It is an excellent vegetable from April till June. Its value has been recently brought to my notice by a medical gentleman, who thinks most highly of it in cases where Spinach or similar vegetables are required. Many years ago I grew this plant in Lincolnshire, and it is grown in most gardens in that and the adjoining counties. The plant is a perennial, a native of Britain, and found in many parts of Europe. At this season the young shoots are cut and tied in bundles for coking. Later, when the shoots age, the leaves are gathered like Spinach and cooked in the same way. The plant is easily grown from seeds sown in the spring in good, deeply dug soil. The plants should be kept well thinned. In cottage gardens it is mostly grown by dividing the plants early in the spring, and these soon give new growths for cutting the same season. *G. W.*

FRITILLARIA IMPERIALIS.—Amongst the many early flowers that adorn the garden at this time of year, the above species is a very grand object, and it seems to be exceptionally floriferous this year. Mine are very fine just now, having between 300 and 400 heads of bloom, and some of them are 4 feet high, mostly red varieties; the yellow ones appear more delicate, for they seem to diminish. I have two or three other colours. Maxima is altogether larger in flower and stature, and another with buff-coloured flowers is attractive. The variegated plants do not flower so freely. *J. C.*

BIRDS AND BUDS.—Bullfinches have again been busy with the fruit buds in these gardens since early in the year. They particularly attacked two standard trees of Plum and Damson, and would have done much damage had they not been prevented; but the trees have since been laden with blossom. They also attacked slightly the wall trees. During a few days when things were quiet in the walled gardens a bird was noticed, but not until a number of fat Pear buds had been destroyed. After spraying with the Woburn wash the buds were not attacked. Bush fruits have been scarcely touched, although not protected in any way. *G. H. Head, Kingsdon, Taunton.*

PRUNING OR NON-PRUNING FRUIT TREES.—Although I agree with "Moderate Pruner" that demonstrations of the value of pruning of fruit trees may be needless now, yet in advising the planting of certain sets of Apple trees at Wisley for purposes of pruning or non-pruning demonstration, I had in mind the fact that the Wisley Gardens are intended specially as a school of horticulture, and as such it is of the first importance that the students there should be provided with means of fully testing the merits or demerits of pruning, as is ordinarily practised. Mr. Udale has shown how natural it is that non-pruned trees should in time become larger than are pruned trees. He also shows that it is the annually pruned trees which, after all, do produce the greatest quantity of wood over a series of years, because the annual stimulus to produce new wood excites root action, a stimulus that in time becomes deficient with non-pruned trees; hence, although wood shoots are dense, both leafage and fruits are smaller than is the case with those products on properly pruned trees. It is well known that whilst a non-pruned tree may produce in double or treble numbers about the same weight of fruit as a pruned tree, yet that from the latter has the advantage of being of much greater market-value because of greater size and finish, and in addition has not in any appreciable degree created so great a strain on the tree's reproductive powers, relatively because the production of pulp is not so exhaustive as seeds, cores, or stones, which require the highest efforts of the plant. *A. D.*

BUTTER (WAX) BEANS.—A contribution, signed *F. M.*, on this subject, appeared in your issue of July 7 last. I am not aware of any progress made in this country in connection with Butter Beans, although, as a vegetable, they take a very favourable position abroad. I have had a long personal experience in this country with this delicious vegetable, delicious if rightly prepared, and not merely on the popular "plain boiled" method. The Bean, if carefully dressed, is relatively on a level in its season with the popular Seakale in the early months of the year. As the planting season is now on, and will continue until the end of May, plantings may be made for succession. In the more important German catalogues, there appear fully a dozen varieties of Butter Beans, both dwarf and runner sorts. The finest variety, as found by many years' experience at my hands, is the "Flageolet" among that series, and it exists in both dwarf and runner sorts. When the crop is ready for gathering during August and September, it has a very attractive appearance on the bine. The preparation for table consists in cutting off the tops and tails, and carefully removing any side strings. Then tie the Beans whole into small bundles like Asparagus, place them for about 20 minutes in boiling water, with a little salt added, until quite tender; strain them thoroughly, and place them lengthwise in a vegetable dish, with *pale* raspings. Pour over "oiled" (not the more popular melted) butter and thus serve. *H. H. R.*

TRADE NOTICE.

FAILURE OF NURSERYMAN.

The first meeting of the creditors interested under the failure of George Edward Poole, 9, Oakfield Place, Clifton, and of Warwick Nurseries, Warwick Road, Redlands, Bristol, Nurseryman, was held on the 25th ult. The summary of accounts showed liabilities amounting to £248 and assets estimated to produce £206 after deducting preferential claims, thus leaving a deficiency of £386. According to the observations of the official receiver, debtor, who is 27 years of age, began business in 1904 with a capital of £250, of which £225 was paid for the business. He attributed his insolvency to want of capital, and stated that he spent too much upon the erection of greenhouses without having control of sufficient money to pay for them or to carry on the business.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 30.—The Royal Horticultural Hall was again well filled with exhibits at the meeting on Tuesday last. In addition to the Orchids, Daffodils, and other exhibits before the committees of the Royal Horticultural Society, there was the annual display of Auriculas and other Primulas shown under the auspices of the NATIONAL AURICULA & PRIMULA SOCIETY (Southern Section), a report of which will be found in another column.

The ORCHID COMMITTEE recommended awards which included one Botanical Certificate, three First-Class Certificates, and four Awards of Merit.

The FLORAL COMMITTEE's awards consisted of one Award of Merit to a new winter-flowering Carnation, and a similar award to a variety of *Cydonia japonica*.

The FRUIT AND VEGETABLE COMMITTEE did not recommend an award to any novelty.

The NARCISSUS COMMITTEE recommended two Awards of Merit to new Daffodils, and a similar award to a new Tulip.

The best and most novel exhibit in the show was one of *Gloriosa rothschildiana*, shown in a growing condition by the Hon. WALTER ROTHSCHILD, which was appropriately awarded a Silver-Gilt Lindley Medal, the Lindley Medal being one specially reserved for the encouragement of good cultivation.

In the afternoon a lecture on "Amateurs, and Horticultural Law" was delivered by Mr. H. MORGAN VEITCH.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. C. T. Drury, Geo. Nicholson, Jno. Green, T. W. Turner, W. Thompson, M. J. James, C. E. Shea, C. E. Pearson, R. C. Notcutt, H. J. Cutbush, W. Howe, R. Hooper Pearson, C. Dixon, E. T. Cook, E. H. Jenkins, and P. W. Barr.

A magnificent group of Souvenir de la Malmaison Carnations was contributed by C. F. RAPHAEL, Esq., Porter's Place, Shenley, Herts. (gr. Mr. A. Grubb). The plants were all of a pink-flowered variety, and some of them bore as many as ten good flowers. The exhibit represented first-class cultivation. (Silver-Gilt Flora Medal.)

The Hon. WALTER ROTHSCHILD, Tring Park, Tring (gr. Mr. A. Dye), made a charming exhibit with the beautiful *Gloriosa rothschildiana*, which formed a whole-page illustration in our issue for May 23, 1903, p. 323. The method of displaying the flowers was novel and natural, the plants being trained on arches of trellis work and planted in boxes, from which the arches sprang. The culture of the plants was all that could be desired, for they were crowded with the beautiful Lily-like crimson flowers, and exhibited luxuriant growths; a carpeting of moss on the boxes and an edging of the white *Astilbe* furnished a pleasing finish to the display. (Silver-Gilt Lindley Medal.)

Messrs. ROBERT VEITCH & SON, Exeter, exhibited sprays of interesting plants in flower. The yellow-flowered *Sophora tetraptera*, with Acacia-like foliage; *Myosotidium nobile* and its white form; *Sutherlandia frutescens*, a red leguminous flower with pinnate foliage; *Rhododendron Luscombe's* Seedling, and magnificent sprays of *Erica Veitchii* X.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, made an imposing exhibit of forced shrubs and ornamental flowering trees. Tall plants at the back of *Pyrus Malus floribunda* and *Cerasus pseudo-cerasus* J. H. Veitch overhung smaller plants of *Wistarias*, *Hydrangeas*, *Peaches*, *Cherries*, and *Rhododendrons*, finishing in the foreground with the floriferous *Schizanthus Wisetonensis*, and the pretty-leaved *Eurya*. A separate group comprised choice indoor-flowering plants, *Cinerarias*, *Kalanchoe Felthamensis*, tiny plants of *Exacum macranthum*, a choice example of *Medinilla magnifica* and other equally beautiful subjects. (Silver-Gilt Flora Medal.)

J. C. TREMAYNE, Esq., Heligan, Mevagissey (gr. Mr. S. Jordan), showed *Rhododendrons*, *Camellias* and *Roses* from the open. The *Roses* were remarkably fine, and included the varieties *Catherine Mermet* and *Niphetos*.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, showed sprays of interesting and uncommon plants. *Caragana jubata* is a curious leguminous flower, produced on the old spiny branches; *Arbutus procera* has its inflorescence in a dense terminal spike; *Larix Koraensis* is supposed to be new to gardens; *Illicium religiosum* has white strap-shaped petals. There were also some fine *Rhododendrons* such as *Lady Alice Fitzwilliam* and *Helen Schniffner*; *Exochordas*, a pretty hybrid Musk Rose named *Snowstorm*, and several other plants of interest. (Silver Banksian Medal.)

Lord ALDENHAM, Elstree House, Elstree (gr. Mr. E. Beckett), displayed sprays of flowering and pretty-barked trees and shrubs from the rich collection at Elstree. (Silver Flora Medal.)

Mr. J. R. RUSSELL, Richmond Nurseries, Surrey, contributed a group of forced shrubs, in which the standard *Lilacs*, *Wistarias*, *Weigelas*, and dwarf plants of *Rhododendron molle* were pretty features. (Silver Flora Medal.)

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, exhibited sprays of flowering shrubs, and of ornamental leaved shrubs, as well as species of *Pyrus*, &c., in pots. Messrs. CHEAL exhibited a weeping variety of the Japanese Cherry, under the name of *Prunus pseudocerasus pendula* Chealii! (Silver Banksian Medal.)

Messrs. JOHN PEED & SON, West Norwood, London, S.E., staged a group of ornamental-leaved *Acers* (*Maples*), interspersed with a few plants of showy *Clematis*, and edged with a border of *Eurya latifolia*. Some large *Pansies* were also displayed in the exhibit. (Silver Banksian Medal.)

Messrs. THOS. CRIPPS & SON, Tunbridge Wells, Kent, filled one corner of the Hall with a bank of fancy-leaved *Maples* of the *palmatum* and *japonicum* sections, and ornamental Vines, with a few other subjects, such as *Panicum plicatum*, *Euonymus latifolius*, and *Eurya* intermingled. (Silver Banksian Medal.)

Messrs. H. B. MAY & SONS, Upper Edmonton, London, displayed a good strain of herbaceous *Calceolarias*, choice crested and plumose varieties of hardy Ferns, *Vitis heterophylla*, the pink *Verbena* Miss Willmott, and a number of bunches of Zonal *Pelargoniums*. (Silver Banksian Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, staged well-flowered plants of *Metrosideros* (the Bottle-brush tree), *Gerbera Jamesoni*, *Schizanthus Wisetonensis*, a very large-flowered *Abutilon* named *Triumph*, *Erica Cavendishii*, and the trailing *Lotus peltorhynchus*.

Messrs. J. CARTER & CO., High Holborn, London, exhibited a semi-circular group of *Cinerarias*, arranged on the ground floor. Plants of the stellate type were placed at the back, and others formed two small groups near the front, the rest of the exhibit being composed of approved varieties of the florists' or large-flowering strain. (Silver Banksian Medal.)

Messrs. HOBBS, LTD., Dereham, Norfolk, exhibited *Roses* both as plants in pots and as cut flowers. The rambling varieties in pots were capital, and included the new *Hiawatha*, a single crimson flower with white centre; the better-known *Lady Gay*, &c. A new Rambler, apparently from Germany, is named *Tausendschön*. It is distinct from the usual type, the flowers being very large, semi-double or double, and of a most pleasing shade of soft rose. (Silver Banksian Medal.)

Messrs. W. PAUL & SONS, Waltham Cross Nurseries, Herts, had a very attractive exhibit of *Roses* in pots, among which we noticed a distinct *Polyantha* variety named *Aennchen Müller*, as shown, about 2½ feet high, with rich coral-pink coloured flowers, in which the petals are somewhat convolute, the margins being rolled underneath. The flowers are much less fugitive than those of most varieties of this type. Messrs. PAUL also showed the Rambler *Tausendschön* (mentioned in the note of previous exhibit), and many others. (Silver Banksian Medal.)

Messrs. BEN. R. CANT & SONS, Colchester, exhibited *Roses*, having standard plants of Tea varieties, and pillar plants at the back, with an assortment of choice blooms in boxes and vases in the front. Mme. Jules Grolez was shown fine as a standard, and amongst the best cut blooms were those of *Marquise Litta*, Mme. Melaine Soupert, Grace Darling, Mme. Ravary, and Papa Lambert. (Silver Flora Medal.)

Mr. GEO. MOUNT, Canterbury, again exhibited Roses in the very best style. (Silver Banksian Medal.)

Messrs. S. BIDE & SONS, Alma Nursery, Farnham, showed their new H.T. Rose Queen of Spain. The colour is a pale suffusion of rose.

Mr. W. E. WALLACE, Eaton Bray, displayed the scarlet Rose Richmond and a bowl of the pink Carnation Enchantress.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., showed some excellently-flowered plants of Carnation Robert Craig, baskets of Verbenas Princess of Wales, and F. A. Bevan, the latter a new pale-pink variety; Roses Mrs. F. W. Flight and Mrs. W. H. Cutbush; and, as a separate exhibit, a miscellaneous collection of Alpine and other hardy flowers, with dwarf, showy-flowered shrubs. A beautiful specimen of the white Rhododendron cesterianum is deserving of mention, and other good things seen were Ledum palustre, Crinodendron Hookeri, with red globular flowers on a long stalk; hardy species of Cypripediums, &c. (Silver Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, against exhibited bunches of Zonal Pelargoniums and a few of the choicer show varieties. They had also bunches of Primula obconica flowers tastefully arranged in glass vases with Adiantum Fern. (Silver Flora Medal.)

Messrs. V. N. GAUNTLETT & CO., LTD., Chiddingfold, Surrey, staged some freely flowered Azaleas, and a few hardy flowers. Azalea Omurasaki, as its name implies, is of Japanese origin; its spotted flowers are tinted a pleasing lilac-blue, an uncommon shade.

Messrs. DOBBIE & CO., Rothsay, N.B., and Marks Tey, Essex, showed named varieties of Pansies and Violas, some brilliant Anemones of the Giant French strain, and improved kinds of Primula Sieboldi. (Silver Banksian Medal.)

Mr. AMOS PERRY, Hardy Plant Nursery, Enfield, Middlesex, exhibited his improved variety of Phlox canadensis, and cut spikes of Erythroniums, including E. Watsoni, E. giganteum, and E. revolutum.

Messrs. R. WALLACE & CO., Kilnfield Nurseries, Colchester, had many uncommon hardy plants in flower, and an assortment of Narcissi, Tulips, and other spring-flowering bulbs. Many interesting Fritillarias were noticed. F. recurva has red flowers borne on terminal spikes; F. libanorica is a curious green-flowered species, having a tall, many-flowered spike. We also noted Lewisia Tweedii, Iris pumila, Aubrietias, &c.

Mr. GEO. REUTHE, Keston, Kent, showed seasonable hardy plants in flower, showy trusses of Rhododendrons, and Daffodils in variety. (Bronze Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants., showed an excellent batch of plants of Iris pumila, amongst other hardy flowers.

Exhibits of hardy plants were also shown by the Misses HOPKINS, Barming, Kent; Messrs. BARR & SONS, King Street, Covent Garden; the GUILDFORD HARDY PLANT NURSERY, Guildford (Bronze Flora Medal); Messrs. GEO. JACKMAN & SON, Woking, Surrey; Messrs. T. S. WARE, LTD., Feltham, Middlesex; and the Misses E. & M. KIPPING, Hutton, Essex.

Messrs. GILBERT & SON, Dyke, Bourne, Lincolnshire, staged vases of brilliant scarlet Anemones, amongst which was a large form of Anemone fulgens; the double scarlet-flowered King of Scarlets, some of the large French Anemones in several colours, with a few Fritillarias, &c.

Mr. GEO. KERSWELL, Exeter, again displayed boxes containing the beautiful blue Gentiana acaulis.

Lord HOWARD DE WALDEN, Audley End, Saffron Waldon (gr. Mr. James Vert), exhibited two dozen plants of Schizanthus Wisetonensis that exhibited good culture.

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, showed bowls of Lily-of-the-Valley, Tulips, Daffodils, and Anemones grown in moss fibre.

AWARDS OF MERIT.

Carnation Jessica.—This is another of the winter-flowering, or tree, type, but, contrary to the many self-coloured varieties that have gained Awards recently, "Jessica" has white flowers, flaked with scarlet. The blooms are of large size, somewhat flat in form, and almost scentless. Nevertheless, it is a very pretty variety. Shown by Messrs. W. CUTBUSH & SONS.

Pyrus [Cydonia] japonica Simank.—This is not a new variety, but is certainly the deepest-coloured form of this popular plant. Shown by Lord ALDENHAM.

Narcissus Committee.

Present: H. B. May, Esq. (Chairman); and Messrs. J. T. Bennett P86, R. Sydenham, Rev. J. Jacobs, W. A. Milner, J. Pope, W. T. Ware, Chas. Dawson, Alex. W. J. Wilson, E. A. Bowles, P. R. Barr, W. Poupert, E. Willmott, Jas. Walker, C. T. Digby, A. Kingsmill, W. F. M. Copeland, F. W. Currey, S. Eugene Bourne, J. D. Pearson, G. Reuthe, R. W. Wallace, G. W. Leak, and Chas. H. Curtis (hon. sec.).

One of the finest collections of Narcissi ever staged at an exhibition was shown on Tuesday last by Miss E. WILLMOTT, Great Warley, Essex. This collection contained not merely the finest novelties of the day, but also many seedlings of great promise. We will mention a few of the choicer kinds, but before doing so, may refer to the fine effect made by showing many flowers of each variety with a great length of stem, and arranging them with perfect taste. We noted Duchess of Wellington, a very fine white ajax kind; Almira, poeticus; Countess of Strathmore, a handsome white ajax with creamy trumpet; Diana, a fine flower of the Leedsi type; Lady Margaret Boscawen, in splendid condition; Countess Visconti, a giant bicolor of Queen of Spain type; Count Visconti, a self yellow of the same type, both distinct and beautiful; White Sergeant, a drooping, white ajax with sulphury trumpet; Rochester, a big poeticus; Sihon, a giant bicolor ajax; Will Scarlet and Lucifer, with brilliant orange scarlet crown and cup respectively; White Queen, King Alfred, Robert Berkeley (a fine bicolor of Sir Watkin form). (Gold Medal.)

Mr. J. WALKER, Thame, Oxon, had a small group, in which several of the double incomparabilis kinds were to be seen, Primrose Phoenix being one of the most notable.

Messrs. JAS. VEITCH & SONS, LTD., Chelsea, had a very good lot of flowers of such kinds as H. J. Veitch (yellow ajax), Van Waveren's Giant, Laura (rich golden ajax), Victoria, J. Pope, &c. (Silver Banksian Medal.)

Messrs. J. R. PEARSON & SONS, Lowdham, Notts, staged a choice assortment, including Lucifer, King Alfred, Lady Margaret Boscawen, Haddock's Pride (fine bicolor ajax), Florence Pearson (white ajax), Scarletta (a very striking flower), Hermione, Homespun, Cresset, and many others. All the flowers were fresh-looking and well displayed. (Silver Flora Medal.)

Mr. ALEX. M. WILSON, East Keal Manor, Spilsby, had a rich and varied collection of the choicest novelties such as Ermine, probably a Leedsi variety; Ptarmigan, which appeared to be partly of Leedsi and partly of Barri character; Anthea, a white ajax; Armored (Engleheartii, with richly-coloured crown); Red Eagle, and Chaffinch, both richly-coloured-crown Daffodils; Trixie, of poeticus type, and cup of lemon colour. There were some fine poeticus forms in this group. (Silver-Gilt Flora Medal.)

Mr. F. H. CHAPMAN, Rye, had a small collection of choice varieties. Baracolle, an extra large poeticus; Easter, White Lady, and Albacross were notable and good.

Rev. G. H. ENGLEHEART, Dinton, near Salisbury, had a very delightful exhibit of seedlings of poeticus, ajax, and other sections of the flower.

Messrs. BARR & SONS, Covent Garden, received a Silver Flora Medal for a rich and varied collection of mostly new and choice kinds. One of the most conspicuous, perhaps, was Masterpiece, of the Engleheartii group, the richly-coloured crown of a tone not unlike that seen in Primula Cockburniana. It is a brilliant flower, and the uniform colouring of the crown adds to its attractiveness. (Silver Flora Medal.)

Messrs. R. W. WALLACE & CO., Colchester, had a small set, in which Lemon Queen, White Queen, Diana, Dorothy Kingsmill, and Prion (a fine poeticus) were seen. (Silver Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, had a collection of well-known sorts, chiefly in the Leedsi and incomparabilis sections.

Messrs. HOGG & ROBERTSON, Dublin, had a large exhibit of early Tulips and choice Daffodils. (Silver-Gilt Flora Medal.)

Messrs. R. & G. CUTBERT, Southgate, staged a collection of bedding and May-flowering Tulips.

Messrs. R. H. BATH, LTD., Floral Farms, Wisbech, had a good display of the choicer Daffodils of commerce. (Silver Banksian Medal.) M. C. G. VAN TUBERGEN, Haarlem, Holland, exhibited a few Daffodil novelties.

AWARDS OF MERIT.

Tulip Le Grandeur.—A sturdy and well-known variety of fine petal-formation and substance; colour, crimson carmine. From Mr. W. T. WARE, Bath.

Narcissus Ailsa.—A white ajax Daffodil with bold trumpet and big, heavy reflexing brim; a handsome and effective flower. From Mr. E. M. CROSFIELD, Wrexham.

Narcissus Miss Willmott.—A perfectly unique flower, said to have resulted from the crossing of N. poeticus ornatus and N. incomparabilis Gloria Mundi. It most resembles poeticus, and has its characteristic fragrance. The blossoms are some 3 inches across, and the perianth segments, of remarkable substance and finish, are broadly ovate, and, overlapping each other, give to the flower a perfectly rotund form. The crown, at first flattish, advances to the true poeticus type as the blossoms mature, and is of rich orange at the margin with a golden-coloured base. The plant is possessed of a fine stature, and it is here probably and in the large size that the influence of the incomparabilis variety may be traced. From Mr. W. T. WARE, Bath.

Orchid Committee.

Present: J. Gurney Fowler, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, C. J. Lucas, H. Little, W. Boxall, W. Thompson, F. Sander, W. P. Bound, A. Dye, G. F. Moore, F. J. Hanbury, W. Bolton, A. A. McBean, W. H. White, H. T. Pitt, W. Cobb, W. H. Young, F. M. Ogilvie, J. Wilson Potter, H. G. Alexander, H. A. Tracy, F. J. Thorne, and J. Charlesworth.

Sir TREVOR LAWRENCE, Bart., Burford (gr. Mr. W. H. White), exhibited a very effective group of rare species and singular hybrids. Patches of bright scarlet colour were furnished by plants of Epidendrum radicans, Epiphrontis Veitchii, and Sophronitis grandiflora; and of yellow by Oncidium concolor—of which there were two fine new forms named maculatum and macroglossum respectively; and other Oncidiums. In the centre of the exhibit was a fine specimen of Lælio-Cattleya Choletiana, and among other hybrids noted were L.-C. Adolphus, L.-C. Mozart, Miltonia Bleuana (a grand plant with 20 flowers), some pretty Epi-Lælias, the handsome Dendrobium Lowie-eburneum, and D. Dalhousie, &c. The species were represented by a beautiful specimen of Cattleya Schroderae, carrying 20 flowers, and which secured a Cultural Commendation; the new and pretty Cœlogyne Lawrenceana, Angracum Germinyanum, Pleurothallis Grobyi, Sarcophilus Fitzgeraldi, Oncidium carthaginense roseum, and others seldom seen on the exhibition table. A Silver-Gilt Flora Medal was awarded the group.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, staged an excellent group, in which the best white typical form of Odontoglossum crispum was largely represented. With these were Odontoglossum Adrianae and others of that genus, including an example of the handsome purple-blotched O. ardentissimum Lamus, the pretty and new Dendrobium Wilsoni (introduced from China by the exhibitors), some brightly-coloured Lælia cinnabarina, Oncidium sarcodes, O. Marshallianum, Lælio-Cattleya Antigone, and other hybrids, Dendrobium thrysiflorum, good Cattleya Mendelii, &c. (Silver Flora Medal.)

Messrs. SANDER & SONS, St. Albans, staged a group which included some good novelties, the best of which, Odontoglossum Prince Edward of Wales, and the fine yellow Dendrobium chrysæum giganteum secured Awards. Amongst the examples of Odontoglossum crispum were several blotched forms, the largest and darkest in its markings being O. crispum hellemense; another unnamed form was a shade of reddish orange suffused with rose after the manner of Graireanum, but the full beauty of the colours was undeveloped. Odontoglossum Prince Albert ardentissimum x Wilckeanum carried handsome flowers, the basal two-thirds of the segments being coloured dark purplish brown, the tips

and the margin being cream colour; *O. excel-lens* "Golden Glory" had canary-yellow-coloured flowers, that were marked with dark purple. Other good hybrid *Odontoglossums* were also shown. Of the *Cattleyas*, *C. Schroderae*, Mrs. H. G. Moon was a large and perfectly formed bluish-white flower, with an orange disc, and crimped petals and lip; *Lycaste Baringtoniae*, a pretty *L. Skinneri*, *Cattleya intermedia alba*, *Epidendrum glumaceum*, and other good things were also included in the exhibit. (Silver Flora Medal.)

Messrs. JAS. CYPHER & SONS, Cheltenham, had a well-arranged group, comprised of *Odontoglossum crispum*, *Laelia purpurata*, *Laelio-Cattleya Hyeana*, finely-flowered *Miltonia vexillaria*, *Ada aurantiaca*, &c. Amongst a number of other pretty species and hybrids was the elegant little *Odontoglossum nævium*; the scarlet *Renanthera Imschootiana*, *Dendrobium crepidatum*, &c. (Silver Flora Medal.)

Messrs. MOORE, LTD., Rawdon, Leeds, staged a group of *Dendrobiums*, *Odontoglossums*, *Phalænopsis Luddemanniana*, *Cattleya citrina*, *Cypripediums*, &c. (Silver Banksian Medal.)

R. I. MEASURES, Esq., Camberwell (gr. Mr. Smith), staged a small group, in which several good specimens of *Cattleya Lawrenceana* were exceptionally well bloomed. The collection also included *Cymbidium Low-grinum*, *Cypripedium W. R. Lee*, *Cattleya Schroderae*, *C. Schilleriana*, *Angraecum sesquipedale*, *A. Leonis*, &c. (Silver Banksian Medal.)

J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. G. G. Whitelegge), showed *Odontoglossum Rolfeae* "Kathleen," a most remarkable and nearly unspotted variation resembling a very large *O. Pescatorei*, but with flowers of the size and shape of *O. Rolfeae*; also two flowers of *Masdevallia Veitchiana*, in which the front division of the perianth was three instead of two-lobed, as in the normal. The variety is said to be constant. A well-formed flower of *Cattleya Trianae* was also noticed.

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr. Mr. Howard), showed an inflorescence of *Laelia purpurata* Miss Little, a charming, clear white variety with a slight pencilling of lilac colour on the sides of the lip.

E. ROBERTS, Esq., Park Lodge, Eltham (gr. Mr. Carr), sent *Cypripedium* Mrs. Herbert Druce, having clear, white flowers closely spotted with purple.

JEREMIAH COLMAN, Esq., Gatton Park, showed *Cattleya* William Murray "Gatton Queen," a distinct form, with a very fine mauve-purple coloured lip.

Monsieur MERTENS, Ghent, showed several good hybrid *Odontoglossums* and a spike of a very handsome blotched *O. crispum*.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed *Odontoglossum hellemense*, said to be a natural hybrid between *O. loochristiense* and *O. crispum*, with canary-yellow flowers that are marked with red-brown similarly to a good *O. Andersonianum*. Mr. CRAWSHAY also displayed the fine purple-blotched *O. crispum* Poultoni.

AWARDS.

FIRST-CLASS CERTIFICATES.

Brasso-Lalia-Cattleya Fowleri (*Cattleya Schroderae aurantiaca* × *Brasso-Lalia Mrs. Gratrix*).—A very remarkable hybrid, unique in colour and of good size and shape. The flowers are almost as large as those of *Cattleya Schroderae*, but they are thicker in substance and possess a fringed lip. The ground colour is yellow, but the sepals and petals are suffused with salmon-rose over the greater part of their surface, and the flower is also closely and beautifully veined with a darker tint of the same colour. The large disc of the lip is coloured buttercup-yellow, while the broad margin of the lip is veined and tinged with salmon-rose. The sepals show a golden hue, and the colouring throughout is indescribably beautiful.

Brasso-Cattleya Digbyano-Schroderae, Fowler's variety.—The largest and best of its class, the large labellum being finely fringed and well displayed. The flower is white, with a slight bluish tint, and a large yellow disc to the lip. Both exhibited by J. GURNEY FOWLER, Esq.

Odontoglossum Prince Edward of Wales (*Rolfeae* × *Harryano-crispum*).—A very fine hybrid, embodying the good features of *O. Harryanum*, *O. crispum*, and *O. Pescatorei* and with form intermediate between its parents.

The plant carried a strong spike of white flowers, each of fine size and substance, the segments bearing heavy transverse bars and blotches of clear purple colour. From Messrs. SANDER & SONS, St. Albans.

AWARDS OF MERIT.

Brasso-Lalia Gipsy (*L. cinnabrosa* × *B.-L. Helen*).—A very pretty and distinct hybrid with the fringed lip derived from *Brassavola Digbyana* through *B.-L. Helen*, and the coppery-tinted sepals of *L. tenebrosa*, which was one of the ancestors on each side. Sepals and petals both a shade of reddish copper colour, tinged with rose. The centre of the lip is of pale yellow, with 1-inch wide margin of rose colour in front.

Laelio-Cattleya Ganymede (*L. Latona* × *C. Schroderae*).—A variety having sepals and petals bluish-white, tinged with yellow, and more especially on the lower sepals. The disc of the lip is a rich orange colour; front claret-purple. A pretty novelty. This and the preceding plant were shown by Major G. L. HOLFORD.

Dendrobium chrysium giganteum.—A large and fine form of a little-known, pretty species. The flowering stems are slender and bear large, solitary, rich yellow-coloured flowers, which possess a fringed lip. From Messrs. SANDER & SONS, St. Albans.

Laelio-Cattleya Frederick Boyle var. Kerchouea, from the Marquis DE WAVIN, Somerghem, Belgium (gr. Mr. de Geeste). Flowers white, with yellow crest to the lip and resembling a large, white *Laelia anceps*, which was one of the parents, the other being *Cattleya Trianae alba*.

BOTANICAL CERTIFICATE.

Dendrobium Wilsoni.—A pretty, fragrant species with a general resemblance to *D. moniliforme* (japonicum) but larger and taller. (Described in the *Gardeners' Chronicle*, March 24, 1906, p. 185.) The flowers are pink, with a dusky crest to the lip. This very floriferous cool-house species was introduced from China by the exhibitors, Messrs. JAS VEITCH.

Acineta Humboldtii (var. *Colmani*).—A sparsely-spotted form of the fine old species. The whitish flowers are spotted with purple.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (Chairman); and Messrs. Jos. Cheal, W. Bates, H. Parr, A. Dean, Geo. Kelf, Jno. Lyne, J. Jacques, P. C. M. Veitch, C. G. A. Nix, W. Crump, Owen Thomas, W. H. Divers, C. Foster, A. H. Pearson, Ed. Beckett, Jas. Vert, Jos. Davies, and A. R. Allan.

A box of fruits of Strawberry Royal Sovereign was exhibited by Messrs. S. LEDSHAM & SON, 40, Foregate Street, Chester. In all, there were 18 fruits, and they weighed 2 lbs. (Cultural Commendation.)

Mr. FREDERICK COLLIS, Bollo Lane, Chiswick, again displayed his deep-coloured Rhubarb named Collis's Ruby.

Mr. S. MORTIMER, Rowledge, Farnham, Surrey, showed fruits of Tomato Sunrise, a variety that has already received an Award. Some of the clusters of fruits contained as many as 18 Tomatos, but they were not of large size.

Several seedling Apples were presented for Award, including one from the veteran raiser, Mr. C. ROSS (gr. to Col. ARCHER HOUBLON, Welford Park, Newbury). The variety was named *Encore*; it is a large greenish-yellow fruit.

"THE AMATEUR, AND HORTICULTURAL LAW."

THE amateur and his position in respect to horticultural law formed the subject of a lecture given by Mr. H. Morgan Veitch before the afternoon meeting of the Fellows. The lecturer pointed out that in the first instance it is necessary to distinguish the rules of law relating to private gardens from those affecting the professional growers, as well as from the law relating to woods and forests and other classes of tenancy, and emphasised the fact that the private tenant must not interfere with trees planted or left standing for ornament or those which afford permanent shelter or shade. Instances were given as to the rules of law in deciding what are ornamental trees and what are timber trees. Next the rights of the tenant were defined with regard to windfalls, and trees overhanging adjoining property as well as trees

planted on or near a boundary line. The legal position of the owner of trees, the roots of which encroach on to a neighbour's land was also discussed.

The law relating to fixtures was next dealt with, and examples were given of the distinction between landlords' and tenants' fixtures, especially in the case of growing trees, and of greenhouses. Instances were also given of cases in which greenhouses were sometimes held to be buildings within the meaning of certain by-laws, and of others where they were not deemed to come within this distinction.

Subsequently the law relating to nuisances or annoyances caused by adjoining owners was discussed, particularly damage done to a neighbour's crops by horses, cattle, poultry, dogs, pigeons, &c.

The law relating to trespass was also explained, and instances given of the various remedies exercisable by land-owners, special distinction being made between the right to bring a criminal prosecution and the right to institute civil proceeding for an injunction and damages.

Finally, the audience was reminded of recent legislation affecting growers, and particularly certain acts passed last year, such as the Fertilisers and Fruit Stuffs Act, the Workmen's Compensation Act, and the Prevention of Corruption Act. In discussing the last-mentioned Act the speaker stated that English gardeners as a class do not act dishonestly towards their employers, but he might point out that the penalty for giving, accepting or demanding a secret commission was £500 or two years' imprisonment, or both fine and imprisonment to this extent. Unfortunately for the lecturer, he had no financial interest whatever in any nursery business. He understood that nowadays no firms of any standing would lend themselves to the giving or the offering of secret commission.

Finally, the attention of the audience was called to the Diseases of Plants and Pests Bill now before Parliament, which would enable the Board of Agriculture to take steps to check and stamp out pests and diseases affecting plant life, although compensation to the person whose stock might be destroyed need only be made by the local authority if they thought fit.

At the conclusion of the lecture the audience was invited to ask any questions on any points on which further information was desired, and several interesting questions of practical value were asked and replied to.

NATIONAL AURICULA (SOUTHERN SECTION).

APRIL 30.—The annual exhibition of Auriculas and other plants of the genus *Primula* was held at the Hall of the Royal Horticultural Society, Vincent Square, Westminster, in conjunction with the ordinary fortnightly meeting of the committees, on this date. In extent the show compared favourably with those that have been held in recent years, notwithstanding the defection of cultivators of the flower in the North of England, whose plants were not forward sufficiently to enable them to compete on equal terms with those residing in the milder South.

Novelties were fairly abundant, and these showed in some instances distinct break as regarded colour combinations.

One famous firm of Auricula growers failed to put in an appearance, viz., that of Mr. C. Turner, Slough.

COMPETITIVE CLASSES.

The strongest class was that for 24 show Auriculas, and here Mr. JAS. DOUGLAS, of Edenside Nursery, Great Bookham, won the 1st prize with finely-grown plants, distinct and clear in the paste and edges. Very fine varieties were the Abbé Liszt (green edge), G. Lightbody (grey edge, the premier bloom in the show), Acme (white edge), Olympus (grey edge), Mrs. Dodwell (white edge), Marmion (a very correct flower, possessing a black ground, white paste, and yellow tube). The flowers were a trifle rough, owing to cold weather, but the trusses were large and the foliage good. 2nd, Messrs. PHILLIPS & TAYLOR, Bracknell. Their best examples were a fine specimen of the variety Mrs. Phillips (a rich maroon self) and Mrs. Potts (a fine violet self, very handsome, even if a trifle long in the stem).

For 12 show varieties, Mr. J. DOUGLAS was placed 1st, with a vigorous lot of plants bearing large trusses and blooms. We specially noted

Dr. Hardy (green edge), Olympus (very fine in every point), Abraham Barker (green edge), Eucharis, Geo. Lightbody, Lapwing, Richard Headley (one of the finest grey edges ever raised), Mrs. Phillips, and Favourite.

The 2nd prize fell to Mr. JOHN H. WILSON, of Sheffield, whose finer plants were James Hannaford (green edge), Abraham Barker, Dr. Hardy, Heather Belle, George Rudd, &c.

The 1st prize for six show varieties was won by Mr. R. STAWARD, with fine strong plants possessing large trusses and blooms with well-defined edges and paste area. The finer examples were Lancashire Hero (grey edge), Abraham Barker, Hy. Wilson, Olympus, and R. Headley; 2nd, Mr. W. M. SHIPMAN, Altrincham, with neat plants of Mrs. Potts Gerald (self), and Shirley Hibberd (green edge); 3rd, Miss WILLMOTT, Warley Place.

The same exhibitor as in the preceding class won the 1st prize for four show varieties, with good plants of Geo. Rudd, Geo. Lightbody, Vesta, and a seedling.

SINGLE SPECIMENS.

Green-edged.—1st, Mr. J. H. WILSON, with Dr. Hardy; 2nd, Mr. STAWARD, with Mrs. Hennwood; 3rd and 4th, Mr. SHIPMAN, with Abraham Barker in both cases.

Grey-edged.—Mr. SHIPMAN won 1st prize with Richard Headley, and he was also 2nd with the same variety; 3rd, Mr. STAWARD with Olympus.

White-edged.—Mr. J. T. BENNETT POE was 1st with Vesta; 2nd, Mr. SHIPMAN with Acme; 3rd, Mr. J. T. BENNETT POE with Acme; and 4th, Mr. SHIPMAN, with the same variety.

Self.—Mr. J. DOUGLAS was 2nd with Mikado, a fine, bold fancy, having a purple edge; 3rd, Mr. C. HEMNELLS with Paul Hennells, a flower with a crimson edge; 4th, Mr. SHIPMAN with Gerald.

ALPINE AURICULAS.

In the class for twenty-four Alpine varieties, Mr. J. DOUGLAS won with a grand lot of plants bearing fine, large trusses. The exhibit contained the Premier Auricula in the show, also Argus, Janet, Ettrick, Royal Purple, Diamond Jubilee, Prime Minister (a beautiful, large flower with yellow paste and a crimson edge), and Teviotdale. Some of the plants carried three trusses of blooms on each; 2nd, Messrs. PHILLIPS & TAYLOR, with an excellent and varied exhibit, which included the varieties:—Argus, a seedling, Majestic, and Duke of York. The last-named is a very fine flower, and of correct form: the margin is coloured a deep maroon-crimson, shading to crimson; 3rd, Mr. J. H. WILSON, in whose stand there were Dean Hole, Edith Bentley, Rosy Morn, Duke of York, Forest Queen, &c., all well-formed and beautifully-coloured varieties.

Mr. JAMES DOUGLAS was again to the fore in the class for twelve Alpine varieties, having, amongst others, Glowworm (a crimson-edged flower), Urania (with a blood-red edge), Teviotdale, and Argus.

The best six Alpine varieties of Auriculas were staged by Mr. R. STAWARD. A conspicuous variety in this stand, a seedling, possessed a light purple margin and numerous blooms in the truss: Maggie (a rosy-purple self); Mr. Staward (with two shades of purple); Argus, &c.; 2nd, Mr. J. W. EUSTON (gr. Stanlake Park, Twyford); 3rd, Mr. F. W. PRICE, Beckenham.

For four Alpine varieties, Mr. EUSTON was 1st with Duke of York, Twilight, Thetis, &c.; 2nd, J. T. BENNETT POE, Esq., with Belle Ainslie (a brownish-pink), Urania, Dean Hole, and Toujours Gaie; 3rd, Mr. STAWARD.

Six seedling Alpine varieties.—1st, Mr. THOS. BARFOOT, whose plants were all of Mr. J. Douglas' seedlings, and all of crimson tints of some shade or other in the edging; 2nd, Mr. C. J. BUTLER. A bronze medal of the R.H.S. was awarded to the winner by Mr. DOUGLAS.

Twelve fancy Auriculas.—Mr. J. DOUGLAS was awarded the 1st prize for a remarkable display of plants, showing departures in the colours of the edges from existing varieties, and we may indicate in this respect the varieties Rolts' Red, Kestrel, Gaiety, Daffodil, and Innocence.

PRIMULAS.

The best twelve Primulas were shown by Mr. R. STAWARD, and included P. Sieboldii, "Magenta Queen," P. x kewensis, and P. farinosa.

Group of Primulas and Auriculas.—1st, Mr. R. STAWARD, with a number of species of

Primula and varieties of Auricula. We remarked P. japonica, P. obconica, P. x kewensis, P. calycina, P. farinosa, and P. viscosa. These and the Auriculas were bedded out in shallow wooden trays.

Twelve pots of Polyanthus.—1st, Mr. S. MORTIMER, Rowledge, Farnham, with a very floriferous lot of plants of various colours; Mr. F. Bostock (gr. to W. J. HOLLAND, Esq.), was 3rd. Mr. J. DOUGLAS, in a non-competitive exhibit, had many fine pots of these plants.

The best specimen Primrose, a large-flowered yellow variety, was shown by Mr. P. D. WILLIAMS, Lanarth, St. Hevern.

Mr. S. MORTIMER was 1st for a large collection of Primulas and varieties of Polyanthus.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 18.—*Committee present:* Messrs. E. Ashworth (Chairman), and Messrs. R. Ashworth, Warburton, Williamson, Thorp, Parker, Thompson, Stevens, Ashton, Sander, Cypher, Keeling, Shill, Rogers, Walmsley, Ward, P. Smith, and Weathers (hon. sec.).

The meeting was an excellent one, and groups were as prominent as at previous meetings. In the competition for the Challenge Cup presented to the society for competition by Messrs. Sander and Sons, the chief competitors are A. WARBURTON, Esq., of Haslingden, and W. THOMPSON, Esq., of Stone, both of whom have scored an almost equal number of points. The deciding exhibits will be displayed on May 2, when the winner will be declared. Both gentlemen are to be highly commended for their enthusiasm during the past session. A Gold Medal was awarded W. THOMPSON, Esq., for a group of plants, and other medals for groups were given as follows:—A. WARBURTON, Esq. (Silver-Gilt Medal), Z. A. WARD, Esq. (Silver Medal), R. LE DOUX, Esq. (Silver Medal), CHARLESWORTH & Co. (Silver Medal), Mr. W. BOLTON (Bronze Medal).

First-Class Certificates were awarded Odontoglossum x hybridum var. Thompsoniae, and Cypripedium x W. Stevens, both from the gardens of W. THOMPSON, Esq.; Odontoglossum x Lambeauianum var. Warburtonianum, shown by A. WARBURTON, Esq.; O. x Wilckeanum, Ward's var., exhibited by Z. A. WARD, Esq.; and Cymbidium Sanderæ, from the nursery of Messrs. SANDER & SONS.

Awards of Merit were conferred on Odontoglossum crispum var. Rupert, O. c. var. Louisa Elizabeth, O. x bellatulum var. grandiflora, O. x Elaine var. superbum, O. crispum var. virginale, O. x Ossulstoni var. nigrum, O. x Ossulstoni var. purpureum, O. x Lambeauianum var. rubrum, Cymbidium insignis (syn. C. Sanderi), C. x l'Ansoni, Miltonia x Hyeaenum, and Cypripedium x bingleyense, Walton var., all from the gardens of W. THOMPSON, Esq.; Odontoglossum x Lambeauianum var. purpurascens, O. x amabile, O. crispum var. Victor, O. c. var. Kathleen, O. c. var. Yellow Queen, O. x Lambeauianum var. leucoglossum, Cattleya Schroderæ var. bella, C. S. var. Flora Marguerite, the eight last-named plants were shown by A. WARBURTON, Esq.; Odontoglossum x Adriane, Ward's var., exhibited by Z. A. WARD, Esq.; and Cypripedium niveum, Oakdale var., shown by E. ROGERSON, Esq.

HORTICULTURAL CLUB.

LECTURE ON SOIL INOCULATION.

APRIL 17.—On this date, after the usual monthly dinner of the club, presided over by Sir John Llewellyn, Bart., and attended by a goodly number of members and guests, the latter including Professors Somerville, Simpson, Farmer, and Sir Hugh Beevor, Professor Bottomley lectured on "Soil Inoculation." The lecturer, in his opening remarks, stated that although nitrogen as a gas formed the major part of the air we breathe, plants by themselves are quite incapable of utilising it as food direct, and could only do so when it was in combination with other elements, the compounds being mainly brought about by the agency of bacteria. Over every acre of land there exists in the atmosphere resting upon it no less a quantity than seventy million pounds of nitrogen gas, which, estimated at the price of nitrate of soda, would be worth £360,000 per acre. Now, it has

been known ever since Pliny's time, that leguminous plants, i.e., plants of the Pea family, such as Clover, had a peculiar faculty of living and thriving under such poor soil-conditions as starved other kinds of plants, and not only this, but that they managed somehow to enrich that soil so that good crops of other plants could be subsequently reaped, as good, indeed, as if well manured with nitrate essentials. It was, furthermore, observed that plants so gifted invariably produced a number of tubercles or knobs on the roots, the nature of which was a puzzle to the biologist, and it was only in 1886 that Prof. Marshall Ward, in England, and Prof. Hellriegel, in Germany, quite independently discovered and announced the relation between these tubercles, and the nitrogen supply by which the plants thereby benefited. They were found to be filled with microbes or bacteria, which in some inscrutable way were able to use the aerial nitrogen and supply it as nourishment to the plant they affected. The next thing was to determine whether these beneficent bacteria could be usefully introduced by inoculation to poor soils, and it was found that infusions of crushed tubercles provided material in which the organism multiplied enormously, and that even when dried to a powder the organisms retained their vitality and power to infect absolutely sterile soil for a period of two months. All that was necessary was to put a pinch of this powder into water enriched with a little nutriment, and after a few hours to wet the seed of the plants to be sown with this infusion, let them dry and sow them. In this way, directly the seed germinated, the protruding rootlet became the home of a brood of friendly microbes, who thenceforth multiplied and fed the plant and themselves simultaneously, through the agency of aerial nitrogen. In this connection, Prof. Bottomley exhibited some Pea seedlings sown in sterilised sand, and in sand watered with an infusion of nitrifying bacteria but otherwise clean. The difference even at an early stage was very marked, the extent of growth of roots and foliage was quite doubled in the latter case, and the roots of the infected plants were showing rows of nodules already. An important point appears to be that the poorest land benefits most by soil inoculation. Experiments had shown that where there is already an ample supply of nitrogenous plant food in the shape of liberal nitrate manures, the bacteria lose their energy as stimulators of plant growth. American investigators have taken up this branch of study with great energy, thus affording a marked contrast to the action of our Board of Agriculture here, which, when experimenting with material obtained from America, reported a practical failure, which was, however, due to the fact that the material was kept here for six months before a trial was made, though its vitality can only be depended upon for two. "Nitragin," one of the early materials of this kind, was in vogue for some time, but had certain defects in its preparation which led to its replacement by a triple combination of maltose, potassium phosphate, and magnesium sulphate, by the use of which, according to the directions given, cultures of the bacteria could be successfully made and utilised. Summing up, Prof. Bottomley indicated the advantages of inoculation to be:—(1) Increase of crop of leguminous plants; (2) improvement of soil for succeeding crops; and (3) increase of nitrogenous contents of plants. Cultures of Tares, for instance, without inoculation yielded 1.9 grammes of nitrogen, as compared with 3.07 grammes yielded by inoculated soil. It has been found that this capacity of bacterial association and production of nodules by nitrifying microbes is not confined to the Pea tribe, the Alder, Elæagnus, Podocarpus, and Cycas being symbiotically associated with bacteria morphologically identical with those of the leguminosæ, and the possibility was indicated of other plants being subject to a like influence.

In a discussion which followed the lecture, Prof. Farmer emphasised the great principle of "nothing for nothing" which ruled in Nature, and pointed out that the wonderful energy of these bacteria, which performed a task of dissociation for which man requires an electrical energy of 250 h.p., was derived from the sun through its influence on the foliage. Our most powerful explosives, such as dynamite, as pointed out by Sir H. Beevor, were simply nitrogen compressed, whose sudden liberation meant explosion, and the bacteria reversed

this operation. Mr. Cuthbertson indicated the value of soil inoculation for much of the poor land in Essex, and Prof. Bottomley replied that experiments there had already proved very successful. Mr. Drury asked the lecturer if there was any analogy between these bacteria and those which at the recent Conference on Hybridisation were shown to have symbiotic relations with Orchids. These latter, however, appear to have only power to assist the Orchid in assimilating nitrogen, not from the air, but from ammonia present in the soil; hence they do not produce tubercles, but only help the plant as indicated.

ROYAL METEOROLOGICAL.

APRIL 17.—The monthly meeting of this society was held on the above date.

A paper by Mr. R. L. Holmes on the "Phenomenal Rainfall in Suva, Fiji," August 8, 1906, was read by the Secretary, in the absence of the author. The total fall must have been fully 41 inches in about 13 hours, which he thinks surpasses anything that has been recorded in any other part of the world in so short a space of time.

Mr. R. Strachan read a paper on the "Temperature around the British Islands in relation to the Gulf Stream." This was based on observations made in the year 1906, which have been published by the Meteorological Office. Around the British coasts the temperature of the air was lowest in February, and highest in August; the temperature of the sea corresponded to these epochs with slight interruptions, having been lowest in January for the west and central; in March for the south; highest in September for the north, and in July for the east positions. The water in the Strait of Florida was about 30° warmer than the sea at the north of Scotland.

Mr. L. C. W. Bonacina also read a paper on "Weather regarded as a Function of Climate."

ROYAL SCOTTISH ABBORICULTURAL (ABERDEEN BRANCH).

THE committee of the Aberdeen branch has just issued a syllabus of competitions, open to assistant foresters in the district embraced in the branch—the counties of Aberdeen, Kincardine, and Banff. Prizes are offered for essays on forestry subjects and collections of insects. The syllabus and the conditions under which the competition is to proceed may be had from the hon. secretary of the branch, Mr. Robert Scott, solicitor, 75, Union Street, Aberdeen. The essays and collections must be lodged not later than November 1. The following is the syllabus:—No. 1.—Best collection from a local estate of insects injurious to forest trees. Each insect must be shown in its various stages of development. The collection to be neatly mounted on cards measuring 15 inches by 18 inches. The competitor must also give practical observations on the life history of each insect. No. 2.—Essay on the theory and practice of pruning forest trees. The competitor should state the object and method of pruning, and its effect on the different varieties. No. 3.—Essay or report on the practical work of forestry on the estate on which the competitor is engaged.

NURSERY AND SEED TRADE ASSOCIATION.

APRIL 25.—The annual general meeting of this association was held at its offices, 30, Wood Street, Cheapside, London, E.C.

The report of the committee presented to the meeting showed the association consisted of 184 members; that 1,041 special trade enquiries had been made last year throughout the United Kingdom for the benefit of the members; that debts amounting to £4,884 had been collected by the association and its solicitors, and that the financial position of the association was still improving.

The report contained full extracts from the recent Acts of Parliament affecting the trades represented by the association.

All the officers were re-elected.

The total receipts for the year amounted to £361 5s. 8d., and of this sum £213 3s. was received as subscriptions. After payment of all liabilities, a credit balance on the year's working of £99 5s. 8d. remains.

Obituary.

HON. MARK ROLLE.—This gentleman was so well known among horticulturists, and his gardens and Pinetum at Bicton are so representative, that his loss will be severely felt, more especially among his neighbours and dependents. His discriminating generosity and public spirit caused him to be held in the highest esteem in Devon.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

ALLOTMENTS: H. A., Coventry. You had better consult a solicitor on the matters mentioned.

APPLE BUDS: A. A. W. & Son. The insects attacking your Apple shoots are one of the weevils (*Otiorynchus*). As the insect is unable to fly, if you could be sure that there were none on the tree, "grease-banding" of the stem would keep them off. These weevils generally feed at night, when they may be shaken off the trees on to white cloths, newly tarred or painted boards, or into open umbrellas. No insecticide is of any use. The Board of Agriculture and Fisheries, 4, Whitehall Place, London, S.W., publish a very useful series of leaflets on injurious insects, which may be had gratis by writing for them. The first 100 are bound together; price 6d. You will find an account of the weevils belonging to this genus in leaflet No. 2.

CATTLEYS DISEASED: E. M., Shrewsbury. The specimens sent are suffering from what is called "spot," or Orchid disease. It is often caused by wrong treatment, such as continuing to water heavily after the resting season has arrived. Or it may be brought about by unsuitable, badly, or irregularly heated, and insufficiently ventilated houses. If not divided at the roots occasionally, Cattleyas, under cultivation, often get affected in this way after the elapse of several years, apparently from natural decay.

CHICKWEED IN LAWN: Lawn. If the grass be kept properly and regularly cut no difficulty should be experienced in preventing the spread of this weed. Encourage the growth of the grasses at the expense of the *Cerastium* by occasional dressings of nitrate of soda, applied at the rate of one ounce to each square yard of lawn. In rich soils the grasses will crowd out everything else; in poor lands the weeds can beat the grasses. Next autumn give the land a dressing with short farm-yard or stable manure, and thus improve the fertility of the soil.

CORSICAN PINE: H. Nixon. The disfigurement on the Gooseberry shoot is the cocoon containing the chrysalis of a large moth belonging to the family Bombycidae, but without rearing this moth we cannot name it.

CUCUMBER CANKER: B. E. H. The rotting is caused by the development of fungus in consequence of wet lodging around the collar. Apply powdered charcoal, and when affording water to the Melon roots be careful not to wet the soil immediately near to the stem.

FIGS: Ficus. The fruits are attacked by a fungus consequent on variations of temperature, &c.

MELON: H. D. The collar is affected with a fungus, which generally results from decay caused by the soil immediately around the stem being kept in too damp a condition.—W. W. The fungus you send is the common Morel *Morchella esculenta*, an edible fungus.

NAMES OF PLANTS: G. A. C. *Dendrobium Pierardii* and *Odontoglossum Cervantesii*. The lip of the latter is usually more spotted than in your flower.—Nemo. *Choisya ternata*.—R. B. *Acacia myrtifolia*.—F. R. 1, *Kerria japonica*, double variety; 2, *Cypripedium Leeatum*, but a poor variety; 3, *Begonia nitida*; 4, *Narcissus incomparabilis* variety; 5, *Narcissus bicolor* variety; 6, *Ananas sativa variegata*; 7, *Begonia argyrostigma*; 8, *Begonia incarnata*.—J. B. *Nigella damascina*.—G. H. *Dendrobium fimbriatum oculatum*.—J. F. *Sparmannia africana*.—F. W. J. 1, *Metrosideros floribunda*; 2, *Lotus peliorhynchus*; 3, not recognised; 4, *Episcia*

fulgida; 5, a Leguminous creeper, send when in flower; 6, *Campanula muralis*, send better specimens another time.—H. J. M. 1, *Berberis vulgaris*; 2, *Salvia leucantha*; 3, *Cornus sibirica*; 4, *Spiraea premifolia* double; 5, *Colutea arborescens*; 6, *Kerria japonica*.—L. H. 1, *Lonicera tatarica*; 2, *Muscari comosum*; 3, *Orchis maculata*.—Anxious Subscriber. *Lotus peliorhynchus*.—H. B. 1, *Ornithogalum nutans*; 2, *Cheiranthus Marshalli*; 3, *Narcissus incomparabilis*; 4, *Oxalis Bowiei*.—W. D. 1, *Phillyrea decora* (syn. *Vilmoriniana*); 2, a variety of *Coleus*; 3, *Acalypha Macfeeana*; 4, *Asparagus decumbens*.

PEAR LEAVES: J. L. The Pears are affected with the mite, *Phytoptus Piri*. The Peach leaves are affected with silver-leaf disease. The seed-pod is that of *Cassia fistula*.

PLUM AND PEACH: J. H. You are correct in your statement that the Plum should have two collateral ovules, only one of which, as a rule, comes to maturity, so that there is only one perfect seed. The genus *Prunus* includes *Amygdalus*, *Armeniaca*, *Cerasus*, *Lauro-cerasus*, and some other sub-genera, but if you prefer to consider *Amygdalus* as a separate genus you will find many to agree with you. The differences lie in the downy skin of the Peach (which the Nectarine has not, although it occasionally grows on the same branch as the Peach), in the deeply-furrowed stone, and in the veneration of the leaf, which is folded in the Peach, rolled in the Plum. The misplacement of the legend was corrected in our last issue.

REPORT OF THIRD INTERNATIONAL CONFERENCE ON GENETICS: J. B. C. A copy of the report will be sent free to all Fellows of the Royal Horticultural Society expressing a desire for same. If you are not a Fellow you may still obtain a copy from the Secretary, Royal Horticultural Hall, Vincent Square, Westminster, upon the payment of 15s.

ROSES: A. S. The insects infesting your Roses under glass are beetles belonging to the genus *Phylllobius*. They are very nearly allied to the weevils. Probably the best means of catching them would be to shake the bushes over an open umbrella, or pieces of board freshly painted or tarred so as to be sticky. Spraying the plants with a solution of paraffin emulsion, or with arsenate of lead or Paris Green washes would render the plants distasteful to the insects and poison them if they ate the leaves. Filling the house with hydrocyanic acid gas would probably kill them.

STRAWBERRY PLANTS: Scottie. The grubs you found at the roots of your Strawberries are those of one of the predaceous beetles belonging to the order Geodephaga, but we cannot say to what species or genus it belongs. These grubs, like the parent beetles, feed on small insects, slugs, &c., and one would naturally suppose that they were in search of their prey at the roots of your Strawberry plants, but if you found the grubs in large numbers, and no other pests, it would seem as if they were the authors of the mischief. They have very long pointed jaws which are not well adapted for feeding on vegetable substances, and we can hardly imagine that they injured your plants.

TOMATO DISEASED: H. C. See answer to H. C. in our last issue, p. 276.

VINE ROOTS: *Vinifera*. We have not yet seen the *Phylloxera*, but we are convinced it is present.

WEEDY LAWNS: J. T. As you have practised hand-weeding, and have applied top-dressings with wood ashes and short stable manure, besides making applications of lawn sand and nitrate of soda, there seems little else to recommend in order to exterminate the weeds. If the lawn is restored to a good condition and afterwards is kept closely cut and thickly covered with grasses, we do not think the seeds from the neighbouring hayfield should stand much chance of getting a foothold. In order to make a good start in your case it may be necessary to deeply trench the soil and sow it afresh with seeds.

COMMUNICATIONS RECEIVED.—L. Linden, Brussels (next week).—D. R. W.—H. W.—H. R.—A. S.—D. McD.—G. H.—G. P.—C. E.—G. D.—C. S.—W. P.—E. B. Morton.—W. V.—J. J. B.—H. J. D.—A. F.—T. G.—J. B.—H. W.—W. E. A.—F. L.—D. M. W.—A. W.—E. R.—J. S.—H. G. G.—A. J.—G. H.—H. T. G.—H. R. W.—A. G.—G. F.—H. H. S.—J. D. J.—F. M.—D. R. W.—G. B. M.—J. J. W.—Working Grower.—J. D. G.—R. D.

For Market and Weather Reports see page 2.

THE Gardeners' Chronicle

No. 1,063.—SATURDAY, May 11, 1907.

CONTENTS.

Alpine garden—	Odontoglossum Prince	803
Anemone blanda var.	Edward of Wales	803
scythica	Pansies as bedding	295
Birmingham public	Pinetum at Canterbury	805
parks	Plant notes—	
Books, notices of—	Cosmeas, hybrid	294
Annual and Biennial	Gnidia polystachya	294
Plants	Plants, and water absorp-	298
Congo Flora	tion	298
Floral Designs	Primrose, green	804
Life and Flowers	Pruning of fruit-trees,	804
Mission Emile Laurent	the	804
Brasso-Lælio-Cattleya	Rosary, the—	
Fowleri	Work during May	296
Carbon-supply of plants	Roses, experiments in	301
Chrysanthemum sports	manuring	301
Etherisation of Straw-	Rubber-culture, a lec-	800
berries	ture on	298
Euphorbia pulcherrima,	Scottish garden, a	808
seedlings of	Snails and slugs, the	808
Fig, the reproductive	destruction of—	808
organs of the	Societies—	
Gardeners, young, and	British Gardeners'	807
literary improvement	Association	807
Grafted plants, influence	Debating	806
of scion and stock in	Linnean	806
Horticulture in Egypt	National Auricula and	805
Hyacinths, prizes offered	Primula	800
for	Royal Horticultural	805
Iris iberica flowering in	(Scientific Com-	805
the open at Enfield	mittee)	804
Lead, Arsenate of, as a	Strawberry, Royal Sove-	804
spray	reign	804
Leonardslee gardens	Strawberries, deteriora-	804
Lewisia, the species of	tion in	804
Moræa iridioides, an im-	Swansea public parks	297
proved form of	Trees and shrubs	298
Narcissi at Kirkleving-	Vegetables—	
ton Hall	Autumn Peas	298
New Zealand, emigra-	Week's work, the—	298
tion to	Apiary, the	299
Obituary—	Flower garden, the	298
Dixon, William	Fruits under glass	299
McCulloch, Graham	Hardy fruit garden	299
Ramsay, Dr. R. H.	Kitchen garden, the	298
Temple, William	Orchid houses, the	299
Orchid notes and glean-	Parks and gardens	299
ings—	Plants under glass	298
An interesting hybrid		294

ILLUSTRATIONS.

Anemone blanda var scythica	297
Brasso-Lælio-Cattleya Fowleri	803
Gnidia polystachya	294
Moræa iridioides, Johnson's variety	296
Odontoglossum Prince Edward of Wales	802
Strawberry, a proliforous	808
Temple, William, the late	807
View in the Gardens at Leonardslee, Horsham (Supplementary Illustration).	
Yew, a globe, in the grounds of Cherkley Court	806

IN A SCOTTISH MANSE GARDEN.

NOTWITHSTANDING somewhat unfavourable weather, the flowers of April have been extremely beautiful, and those of May promise to be equally fine. Some time ago I anticipated that Narcissi of every description would prove a comparative failure, but my expectations, unless, indeed, in a very few instances, have not been fulfilled. Of these, the first variety that flowered on our lawn (viz., *Narcissus Scoticus*), was nearly as florally effective as ever, while such lovely bicolors as *Empress*, *Grandis*, and the venerable *Horsfieldii* were hardly less impressive in their general effect than those which adorned our borders last year. These and many others of striking artistic beauty have been of late very picturesque in grass just opposite my study window, where, in company with *Madame de Graaff* (which should be regarded as the finest of bicolors, and not as a white variety), *Narcissus albicans*, and my namesake, which might be described as an orange-coloured Emperor, have grandly naturalised. Enveloped by snowy masses of the extremely graceful *Narcissus ornatus*, whose value in such situations at this season can hardly be

over-estimated, those *Daffodils* have a glorious effect.

Among the greatest beauties of my garden at present are the flowering trees. The *Persian Plum*, *Prunus Pissardi*, has been a veritable shower of blossoms; and I am hoping that it may fruit here this season for the first time, as Mr. S. Arnott tells me it has occasionally done, under genial atmospheric conditions, at St. Mary's Isle, formerly the residence of the late Earl of Selkirk, in Kirkcudbrightshire. But at present the wind, notwithstanding frequent showers, keeps strenuously in the north, and I fear that the consequence may be some degrees of frost—a very trying experience for the evolution from flower to fruit in an Oriental tree. The hardy and generally prolific *Czar Plum* is not blooming so freely as usual this year; but such varieties as the *Early Rivers*, the *Victoria*, and *Denniston's Superb Greengage* are more florally impressive than they have been for many seasons, and that is saying much. Very beautiful at present are the *Early Rivers*, *Black Eagle*, and *May Duke Cherries*, of which the first-mentioned variety is much too delicate for our Scottish climate, as it seldom fruits well. The *May Duke* and *Morello* are infinitely more adapted for cultivation in Scotland. The earliest of all my Apples to flower is the variety *Irish Peach*, usually closely followed by the *Beauty of Waltham*. Here, where these Apples are greatly sheltered from adverse winds, they usually put forth their blossoms on the confines of May. The *Almond* has flowered but sparsely in my garden this season, and only, as I have not failed to notice, on branches facing south, probably because last summer was not sufficiently warm to mature the flowering shoots of this somewhat capricious Eastern tree. Much more reliable in our northern clime is the lovely *Pyrus malus floribundus*, a native of Japan, which I introduced into my garden about five years ago on the recommendation of my friend the late Mr. Wm. Paul. Its flowers, which are produced in the greatest profusion, much resemble those of a miniature Apple, but are even more refined. *David R. Williamson, Wigtonshire.*

HOW PLANTS ABSORB WATER.

PLANTS, flowers, and fruits are made up mostly of water. Chemical analysis shows that there is as much as 90lb. to 95lb. of water in every 100lb. of some of the more succulent fruits and vegetables, such as *Asparagus*, *Cabbages*, *Cucumbers*, *Lettuce*, *Melons*, *Rhubarb*, *Tomatos*, and *Strawberries*; and as much as 80lb. to 85lb. of water in every 100lb. of such fruits as *Apples*, *Apricots*, *Peaches*, *Grapes*, and *Pears*. *Green Peas*, and *Beans* contain 65 to 80 per cent. of water, according to their state of maturity. It is essential that the contents of the cells which enter into the structure of the growing plant should be in a half-liquid condition, in order that the nourishment and the construction-material should be carried and distributed wherever required, be it in the stem, the tender buds, the flowers, or the ripening fruit. When the cells cease to be distended with fluid sap they get flaccid and the plant wilts. Unless this flaccid state is promptly remedied by an influx of sap the cells thicken, lose their elasticity, the plant first gets stunted and finally dries up and dies.

The water necessary for plant growth is absorbed by the root hairs and hair-like rootlets issuing from the stronger roots which penetrate

the ground in search of food and moisture; it does not, however, enter into the circulation of plants quite pure, but contains in solution variable quantities of substances which plants feed upon. From these rootlets it is passed on from cell to cell by a process of diffusion, first along the larger roots, which anchor the plant to the soil, thence to the stem, on to the branches, the buds, leaves, flowers and fruit. That cell-to-cell motion, or that diffusion of the "sap," from the capillary rootlets to the tip of the branches, is quickened by evaporation, and evaporation is greatly accelerated by warmth. The evaporating organs of the plants are the leaves. These, when fanned by a breezy wind, allow a considerable amount of moisture to escape through the stomata or breathing pores. In bright sunlight these pores open to allow the admission of carbonic acid and of oxygen from the atmosphere to the working cells of the leaves. As this takes place, a good deal of the moisture which saturates the air in the intercellular spaces of the leaves escapes to the drier air outside. A vacuum is thus created, and more moisture exudes from the gorged cells to replace the amount lost through evaporation. In this manner a current of watery fluid is created from the rootlets upwards towards the branches and leaves.

The absorptive activity of the roots gives rise to a pressure which tends to force the sap upwards. In fact, root pressure, together with other forces, especially transpiration, causes the crude watery sap to ascend through the woody bundles, or framework, of the plant, and by means of these vascular bundles solutions absorbed are carried upward through all parts of the root and stem, and through the leaf-stalk, veins and veinlets to all parts of the active leaf surface. The amount of water in the soil greatly influences both the actual and relative quantity of moisture in the plant. It is a common observation that rainy, spring weather causes an increase of growth in vegetation.

The root-action of plants must operate with greater effect in a nearly saturated soil than in one which is less moist, and the young cells of a plant growing in a wet soil must be subjected to greater internal pressure than those of one growing in a comparatively dry soil—and must, as a consequence, attain greater dimensions. It is not uncommon to find fleshy roots, especially *Radishes* which have grown in hot-beds, split apart lengthwise. This mechanical effect is indeed commonly conjoined with others resulting from abundant nutrition, but increased bulk of a plant without corresponding increase of dry matter is doubtless in great part the consequence of large supplies of water to the roots and its vigorous osmosis into the expanding plant. *J. J. Willis, Harpenden.*

VEGETABLES.

SOME GOOD AUTUMN PEAS.

DURING the past few years considerable attention has been paid to the raising of late or autumn-cropping Peas, with the result that some splendid varieties, furnishing pods from August to November, now exist. All soils, however, are not suited for their culture, and the best varieties if grown in a poor land resting on gravel will yield but poor results in a hot, dry season. It would well repay the cultivator to improve such poor land, with a view to the culture of these late culinary Peas. For some years I had a poor soil to contend with in the culture of these Peas, and I planted in trenches, first placing clay or strong loam freely at the bottom of the trench. By this system I obtained fair results. Another small detail in my system of culture was that the plants were not staked—not a neat system of gardening certainly, but one

that has its merits in this case, for the shade of the haulm kept the ground cool, with the result that I gathered pods in abundance from these plants, whereas those staked were dried out just above the surface of the soil. In the North I never experienced the least trouble with late Peas, nor in the Midlands in favourable autumns, and have had good dishes of Peas in November. The adoption of trenches saves both time and labour, as late Peas grown on the flat are soon dried up if the land is light. Trenches are almost a necessity in their culture, and when the land between the trenches is given a mulching of manure, the moisture in the soil is greatly conserved.

Of the newer varieties of these Peas, Veitch's Lord Rosebery is well worth a trial, and though it may be termed a maincrop variety, it is also valuable for sowing in August and September. It grows to a height of about 4 feet, bears pods of a large size, and is altogether a vigorous grower. This latter quality makes it especially suited for late supply. Another very fine autumn variety is Sutton's Matchless Marrowfat. It attains to a height of 4 feet, and gives splendid crops. The pods are large, and enclose from 10 to 12 Peas of a dark green colour and of delicious flavour. It is a grand variety for September and October supplies. Another very similar variety is Royal Jubilee, and this being a good grower, is well adapted for culture on poor soils. A variety tried last season, and which proved itself exceptionally good, was the new Carter's Dreadnought. It grows to a height of 3 feet, and produces large pods of Peas of excellent quality. The plants were singularly free from mildew. Another addition is Carter's Quite Content, a variety that will become a great favourite for early autumn supplies. This is the result of a cross between the old, but excellent, Alderman, and the newer Edwin Beckett, and it is also an excellent variety for mid-season or later supplies.

Of older varieties, mention may be made of Michaelmas, a splendid October or even later cropper. This never failed with me to furnish a good crop, and being a dwarf grower (2½ feet) is most valuable in gardens where room is limited. Further reliable kinds are Continuity, Late Queen, and Latest of All. There are also others worth naming, such as the Gladstone, Autocrat (a splendid quality Pea of the old Ne Plus Ultra type), Sharpe's Queen, and Goldfinder, a 6-foot variety of the Ne Plus Ultra type. These are all excellent for late supplies. *G. Wythes.*

ORCHID NOTES AND GLEANINGS.

MILTONIA VEXILLARIA × ODONTOGLOSSUM CRISPUM.

UNDER the heading "My greatest deception as an Orchidist," Monsieur Lucien Linden, of Brussels, sends a long and interesting letter on the subject of the above-named cross.

After describing a few of his many pleasant surprises in new plants, M. Linden relates the care and attention paid to a pot of seedlings, the result of crossing *Miltonia vexillaria* and *Odontoglossum crispum*, and of which much was expected. The little plants died one after another until but a few were left.

Recently one of these plants flowered and its owner was disappointed to find that, in effect, it was nothing but a *Brassia*. "Ca me semble un petit *Brassia* — une fleur abominable, un *Brassia* inconnu."

Monsieur Linden states that a botanist with whom he discussed the matter suggested that it indicated that the genus *Brassia* might have originated in the crossing of *Miltonia* and *Odontoglossum*, but having many crosses between the two genera, he is hoping that they may not bear out the botanist's suggestion. A photograph or drawing of the plant and flower would be of service, for the result described is not what might have been expected.

PLANT NOTES.

THE CULTIVATION OF HYBRID COSMEAS.

So many failures have occurred in the cultivation and flowering of *Cosmeas* in Germany that cultivators have formed an unfavourable opinion concerning these plants. The reasons for this failure appear, according to Herr F. Roemer, of Quedlinburg, to be due to the seeds having been saved from plants grown in warm, dry, southern countries, and, therefore, unsuited for cultivation in climates of a very different character. The seeds germinate readily and freely, and the growth is rapid. The plants show flowers to some extent towards the middle of May; and when they are transferred to the open ground, here and there they produce

planted at 1½ feet apart in the open ground. In about one month the first blooms appear. The simple ray-like flowers measure in diameter 4-5 cm., attracting the attention of the beholder by their beauty. As cut blooms they last a long time when placed in water in a fresh condition, and may be used advantageously in the finest sorts of bouquets. The flowers are white, pink, and purple. As plants for grouping and for beds, these large-flowered, early *Cosmeas* may be most usefully employed. *F. M.*

GNIDIA POLYSTACHYA.

THE plant represented in our illustration (fig. 120) was raised from seeds in the Cambridge Botanic Gardens, where it was cultivated some years ago under the name of *Gnidia simplex*. It is a free-growing, densely-branched shrub,

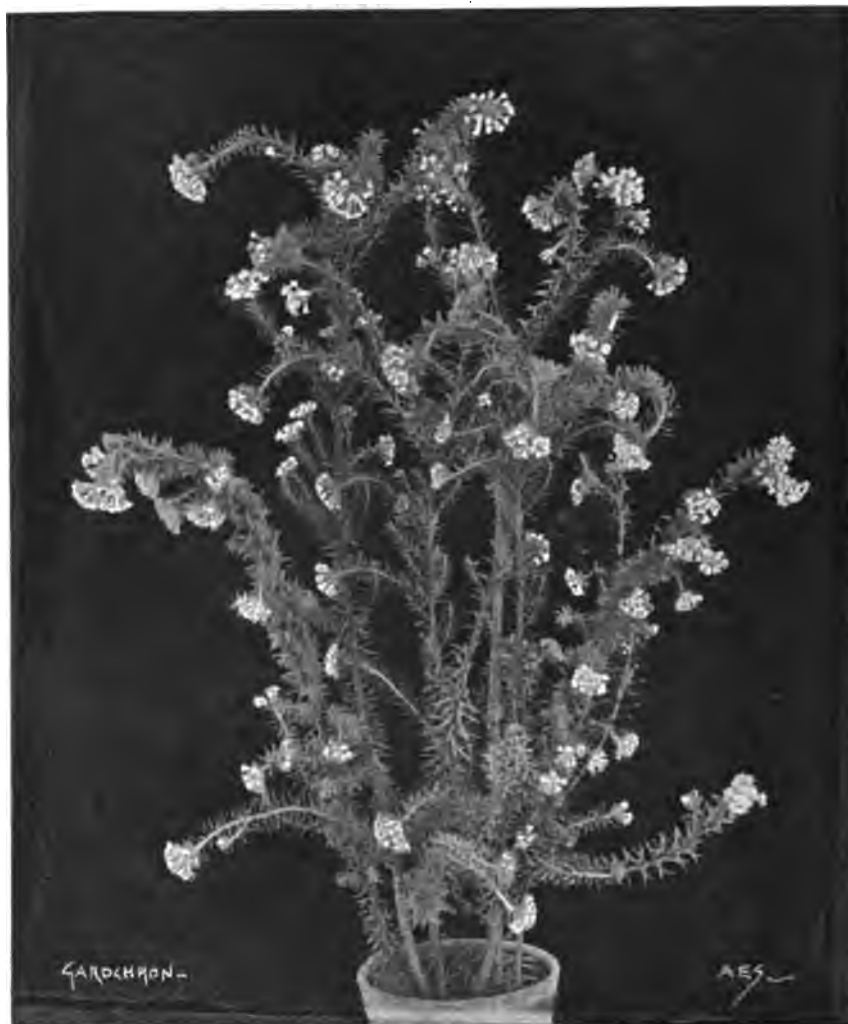


FIG. 120.—GNIDIA POLYSTACHYA: FLOWERS GREENISH-YELLOW.

blossoms, and reach a height of 1½ yards, making pretty bushes, but of further flowering there is no trace. For this there are required the hot, dry air and burning sun's rays of more southern climes. Herr Roemer was as unsuccessful as other cultivators till he began saving seeds from home-grown plants, and selecting the more promising seedlings as seed parents from year to year. By this means he has secured a very free and floriferous strain, which, like other of the better species of annuals, flower from the middle of the month of June till destroyed by frost. The seed is sown in cold frames from the last week of March till the end of April. As soon as the seeds germinate, the frames in which they are housed are freely ventilated, and, when large enough to be handled readily, the plants are pricked off like *Zinnias*, &c. About the middle of May they are

attaining to a height of 6 feet or more, and in superficial appearance somewhat resembles the *Pimelia*, to which it is allied. It is of very light and graceful habit, especially when in flower, each twig being terminated by a cluster of the pretty greenish-yellow flowers, which are remarkably heterostyled. The cool greenhouse is much enhanced by the presence of this plant in early springtime. *Gnidia polystachya* is easy of cultivation: the old plants bear hard pruning, and soon afterwards become furnished with fresh young growths, whilst cuttings root readily under ordinary conditions, and quickly become useful flowering plants. It is a native of the coast regions of South Africa, and is figured in the *Botanical Magazine*, t. 8,001 (from specimens supplied from these gardens), being there mentioned as one of three forms now in cultivation. *E. J. Allard, Botanic Gardens, Cambridge.*

LEWISIAS.

ALTHOUGH a small one, the genus *Lewisia* contains some most interesting plants, and the number of species in cultivation has been increased recently by the reception at Kew of living plants of *L. Cotyledon*. The genus is confined to North-western America, and is closely allied to *Calandrinia*. Several of the species now included in the genus *Lewisia* were formerly included in that of *Calandrinia*. The first species, *L. rediviva*, was found by Capt. M. Lewis, after whom the genus was named, in the beginning of the last century. According to a monograph by Mr. B. Robinson, the number of species included is twelve, of which seven are now in cultivation, while two others, *L. brachycalyx* and *L. nevadensis*, have been cultivated, but are now lost again. They are all low-growing perennial herbs, mostly with fleshy root-stocks and leaves, and some of them have large and attractive flowers. Given a well-drained and sunny position, a few species have proved hardy in this country, and when suited make an effective display with their handsome blooms produced in quantity. The following species are those in cultivation at the present time:—

L. COLUMBIANA, Robinson. (*Calandrinia columbiana* Wats.) is found growing in clefts of rocks on Goat Mountain among other places, in Oregon. It makes a small tuft of narrow fleshy leaves, and bears panicles of small red flowers. Closely allied to *L. Leana*, it is only distinguished by having slightly pubescent leaves that are flatter on the upper side. Introduced by Mr. A. K. Bulley, of Neston.

L. COTYLEDON, Robinson (*Calandrinia Cotyledon*, Wats.).—Plants of this species, collected on the Siskiyou mountains of Northern California, have been lately sent to Kew. It was found growing on well-drained, rocky slopes, with a southern exposure, forming a rosette of leaves each 2 inches long and 1 inch broad, not unlike those of *Saxifraga Cotyledon* without the white margin. The stem, like the leaves, is fleshy, 4 inches or more high, freely branched, bearing numerous 10 petalled, rosy flowers. One of the rosettes received bore a stem with flowers, which were much damaged during the journey, but were sufficiently fresh to give one an idea as to the merit of the plant. A distinctive feature is that both bracts and sepals are firmbricated with reddish, glandular-tipped hairs. It is a promising new plant of great interest.

L. LEANA, Robinson (*Calandrinia Leana*, Porter).—Also from the Siskiyou mountains. It makes a tuft of fleshy, terete leaves 2 inches long, which are glaucous and evergreen. So far it has proved one of the hardiest, as it comes from an elevation of over 7,000 feet. The flower-stems are much branched, 6 to 9 inches high, and bear numerous, rather small white flowers streaked with red. There are only seven petals in each flower, but although small they are pretty, the whole plant having a graceful habit. This species was introduced some four or five years ago by Mr. A. K. Bulley, of Neston.

L. OPPOSITIFOLIA, Robinson (*Calandrinia oppositifolia*, Wats.; *G.C.*, 1888, iv. 601, fig. 83; *Bot. Mag.*, t. 7051).—A native of the bare, moist hill-sides of Oregon and California, this species first flowered at Kew in June, 1888. The plants were raised from seeds sent by the Harvard Botanic Garden in the previous year, but they only lived a few years, being killed during a severe winter. No seeds were ripened, and efforts to propagate by division of the root failed, so that the plant was then entirely lost. It has, however, been re-introduced lately, and distributed under the name of *Calandrinia Howelli*. When it flowered in May, 1905, it proved to be the true *Lewisia oppositifolia*, with a fleshy root, a lax tuft of oblong lanceolate fleshy leaves 3 inches long, and large, pearly-white flowers 2 inches in diameter. The flowers are produced on stems 6 to 9 inches long, and each has 10 petals.

L. PYGMÆA, Robinson (*Calandrinia pygmæa*, Gray).—Widely distributed in the Alpine regions of the Rocky Mountains. It grows only 1 to 2 inches high, with tufts of linear fleshy leaves and numerous small flowers. Plants were in cultivation recently in the nursery of the Co-operative Bees at Neston.

L. REDIVIVA, Pursh.—This name was given to this species on account of the great tenacity of life possessed by the plant. After being pressed and preserved in herbaria for two or three years, they were found to be alive, and when planted grew away and flowered. The figure in the *Bot. Mag.*, t. 5395, was drawn from such a plant, which flowered in 1863. It is a native of the Rocky Mountain region, being found alongside rivers on dry prairies. The large, fleshy roots were gathered and used by the Indians as an article of food. The plants produce tufts of fleshy leaves about 2 inches long, and will succeed in a sunny position in moist but well-drained rocky soil. The flowers are large, freely produced, and of a lovely shade of rose colour.

L. TWEEDYI, Robinson (*Calandrinia Tweedyi*, Gray).—This plant was first received at Kew from Mr. A. J. Johnson, of Columbia Nursery, Astoria, Oregon, in January, 1898, and flowered in May the same year. It was then figured in the *Bot. Mag.*, t. 7633. A native of the Alpine regions in Washington, at an elevation of 6,000 to 7,000 feet, it is quite hardy, but dislikes stagnant moisture. Forming a tuft of broad-leaved foliage, it is a handsome plant, and produces its eight-petalled flowers freely. These are 3 inches in diameter, the petals being somewhat straw coloured, passing into bright pink at the tips and along the margins. Many find a difficulty in growing this beautiful Alpine plant, and it is often lost during the winter. The best position for the plant is one exposed to full sunshine, in a mixture of loam, leaf-soil and sand, with plenty of good-sized stones mixed with the soil. An overhanging stone would afford the necessary protection from wet in winter.

Two other species of this genus have been in cultivation; one, *L. brachycalyx* in 1875, and *L. nevadensis*, from the Sierra Nevada, in 1880, but they were lost again soon after their introduction. *W. I.*

PANSIES AS BEDDING PLANTS.

THE use of Pansies and Violas for spring and early summer bedding is not so general as it should be, considering their comparative low cost, the ease with which they are successfully cultivated, and the fine effect they produce in their season of flowering. This lack of extensive use is, in a great measure, due to the short time the plants remain in bloom, compared with summer bedding plants. This is the case with plants raised in the usual way from seeds sown in August, but to procure a fine show of fresh blooms from neat bushy plants the whole of the summer through, the seeds should be sown in frames during December and January. The seedlings from this sowing should be transplanted, as soon as they are large enough, direct to the beds or borders when the spring bulbous plants are over. They should be placed about 3 inches apart, and will make excellent summer bloomers and will be in prime condition when those sown in August have exhausted themselves. Remove all seed pods from the plants, and if possible during dry weather give regular supplies of water. A mulching will considerably decrease the necessity of watering, and for the purpose procure some short stable manure such as contains a plentiful addition of sawdust, and cover the beds between the plants to the depth of an inch or so with the manure. The plants will soon grow rapidly, and, if planted close enough, cover this material. Great hindrances to the continued flowering and fresh appearance of Pansies is hot sunshine and

dry weather, and the effect of this mulching is invaluable to counteract these influences. Pansies are gross feeders and succeed best in a deep rich soil and one which does not rapidly become dry. The ground in which they are planted should therefore receive a fair quantity of well-rotted stable manure, which should be well forked in after clearing away the spring bulbs. During the last spring I saw some very fine and unique effects in bedding produced by Pansies and Violas in conjunction with Hyacinths and Tulips. The plants were placed separately between the bulbs, and their growths reached almost half-way up the stems of the bulbous flowers, and their foliage carpeted the ground, their flowers blending and contrasting very effectively with the brighter and bolder colours of the bulbs. To have Pansies in bloom at the same time as spring bulbs the seeds should be sown early in July, and the seedlings transplanted to frames for protection during winter until planted in the beds in the early spring. In the case of Pansies grown from seed it is advisable to reserve a few plants to replace any not coming true to colour, as the very best strain is liable to produce a few rogues. An ounce of good seed will furnish about 2,000 plants. It should be remembered that distinct and self colours produce by far the most admired and striking effects. *P.*

NARCISSI AT KIRKLEVINGTON HALL, YORKSHIRE.

At the present time, in the beautiful gardens and grounds of Kirklevington Hall, near Yarm-on-Tees, North Yorkshire, the residence of Mrs. Richardson, is to be seen a splendid display of Daffodils of different species and varieties. The bulbs are planted in almost every conceivable situation—in borders, in the grass, by the side of woodland walks, beneath trees, and on the lawn and pleasure grounds. The varieties are planted in different aspects, some in full exposure to the sun, and others in the shade, and the season of flowering is considerably prolonged. I cannot enumerate all the varieties grown at Kirklevington, but the following are especially beautiful.

Obvallaris is the first of the yellow trumpet Daffodils to flower, and it is planted largely in the grass. This variety is closely followed by *Golden Spur*, one of the most useful kinds for planting either in the border or in the grass. *Henry Irving* is also a very handsome flower. *Maximus*, which Mr. Cunningham, the able head gardener, considers the best in colour of this section, comes next in season with *King Alfred*, a fine rich flower, but rather expensive to purchase at present. *Emperor*, in flower at mid-season, is very largely grown in the grass and in the border, and it is in grand condition. *Glory of Leiden* is rather later in flowering, but *Abcissus* is perhaps the latest of all the yellow trumpet Daffodils.

Among the bicolors is *Princeps*, an early and useful kind grown largely at Kirklevington. *Scoticus* (Scotch Garland Lily) flowers very early and bears a small flower, and it is especially valuable for naturalising in grass. Next follows in order of flowering: *Duke of Bedford*, a splendid flower, but very expensive; *Horsfieldii*, J. B. M. Camm; *Madame Plomp*, considered by some as one of the finest in the section; *Weardale Perfection*, a lovely flower, one of the very best, but rather expensive; and *Grandis*, the very latest to flower.

The silver white trumpet Daffodils are represented by several choice kinds, such as *Princess Ida* and *W. P. Milner*, both mid-season varieties with very pretty, small flowers. Mrs. Camm is a lovely late-flowering variety, while *Madame*

de Graaff is a magnificent flower, the best of the section and rather late.

William Wilks, of the Backhousei section, has medium-sized flowers; the perianth is a pale yellow colour, and the corona is a shade of orange. It is robust in any position in the garden.

The old *Telamonius plenus* is largely grown both in the gardens and ground, and it is also used for forcing.

Queen Bess, with Blackwell, are the earliest incomparabilis. Sir Watkin follows a little later. Titian is grown in the grass, where it is very pretty. Autocrat was noticed in the grass and in the border very free flowering. It is one of the best Daffodils for supplying cut flowers. Frank Miles, in the grass in quantity, was excellent. Gwyther, in a similar situation, was also good. Queen Sophia, a very beautiful

(Mr. Cunningham says: "We think a lot of this variety; we have many thousands of it"); Flora Wilson, Mrs. C. Bowley, a very attractive flower; Dorothy Wemyss, and Golden Gem, the last-named is useful for supplying cut flowers late in the season. Nelsoni major is a fine strong grower and produces a lovely flower.

Firebrand, Blood Orange, and Little Dick, of the Burbidgei type, are grown.

The poeticus type includes Chaucer, ornatus, Cassandra, Poetarum, and the old Pheasant's Eye, which is most useful for late supply. The double white poeticus is plentiful in the grass and also the border. Mr. Cunningham has found that these do best in a damp soil, and that they are liable to be "blind" in dry ground.

Biflorus flowers rather late; it is a small flower, but useful and sweet.

The Daffodils at Kirklevington Hall are

mountainous districts, has there improved in an astonishing degree, so that the blooms, which in the type are 2½ inches across, have become in the Ceylon plant nearly double that size. The height of the foliage (which is upright instead of oblique in growth) is 30 inches; the breadth of the blossom 4 inches; the stamens, which in the original flowers are pale and insignificant, have become 1½ inch long, and of a rich shade of clear violet. The breadth of the perianth segments is more than double that of the Cape variety, and their substance has so greatly increased that they persist for three days in beauty instead of shrivelling in a few hours, as is the case with the bloom of the *Moræa* of the Cape. The yellow blotches of the type have become far larger, and are now of a rich orange, so that the colouring of the Ceylon variety, in violet, orange, and creamy-white, is remarkably beautiful, especially as the segments are handsomely "tigered" (in the improved flower) near their base with deep brown.

Seed gathered from a good type of bloom growing in Ceylon by Mrs. Johnson five years since has produced in the writer's garden a number of fine flowers, some of the seedlings being decidedly in advance of the rest in the size and beauty of their blossoms [see fig. 121]. It, therefore, appears likely that a further increase in these particulars may be expected from careful cultivation and hybridisation. This *Moræa* requires a warm greenhouse, and should be grown in a mixture of good loam, leaf-mould, and charcoal. The blossoms are produced almost continuously throughout the year. *I. L. Richmond.*

THE ROSARY.

CULTURE DURING MAY.

SOME of the more advanced shoots, and especially in the case of those on lightly pruned plants, have been injured by the frost and cold winds. It will, therefore, be necessary to prune again to induce a fresh growth, as the crippled wood cannot be expected to furnish perfect blooms. The maiden buds on the Briar and Manetti stock will now be growing freely, and the growths should be tied to sticks as soon as they are of sufficient length to prevent them being injured by wind. Standard Briars planted in the autumn should be attended to and made firm about their roots. Guard against the beetle that infests and eats off the young tender shoots. Seeds of the Briar sown in drills last month must not be allowed to become dry, and if necessary a good soaking of water must be given. This will aid a portion of the seeds to germinate and break through the soil, but it must be expected that a goodly proportion will not germinate until the second year.

All mulchings, except long straw and litter, should be lightly forked in the ground and a fresh top-dressing applied. There is a difference of opinion among exhibitors on the question of mulching. I have no doubt but that if it is applied at the proper time, and especially just before the flower buds begin to develop, it adds materially to the quality of the blooms. Mixed farmyard manure and soot in solution used cautiously are also to be recommended as a food. The best method of preparing this liquid is to put about 2 pecks of each of the substances into a bag and to float the bag in a 30 or 40 gallon cask of water. The fluid should be of the colour of brown brandy when it is used, and must be diluted according to circumstances, but never used neat. It may be given twice a week to actively growing plants. All growths of climbing and other Roses, either in the open or against walls and fences, should be made secure from injury by wind.



FIG. 121.—*MORÆA IRIDIOIDES JOHNSONI*.

variety, Stella and Stella superba all flower at about the same time. Beauty, Dorothy Yorke, Gloria Mundi, Lucifer, and Lulworth, a nice dwarf-growing variety, are among the latest in this section.

The double-flowered incomparabilis or Butter and Eggs is showy and good for massing; this and Eggs and Bacon are well-known varieties.

Amabilis and Leedsii are earliest here in their section, being closely followed by Minnie Hume, seen in quantity in the grass; and Duchess of Brabant. The later-flowering varieties in this section are: Duchess of Westminster, one of the best; Katherine Spurrell, good; Mrs. Langtry, good and free-flowering; and White Lady, a lovely flower.

Seagull is the earliest of the Barri section. All the following are much later: Conspicuous

growing in a clay soil, especially those planted in the grass. Most of those in the borders are in a sandy clay. Bone-meal as a manure is especially favoured by Mr. Cunningham. *Alfred Gault, Leeds.*

MORÆA IRIDIOIDES.

THIS Iris-like plant, a native of the Cape of Good Hope [see fig. 122], is decidedly variable, and much influenced by soil, climate and cultivation.

The typical plant is small, and its foliage does not exceed 10 inches in height, growing in fan-shaped sprays, which lean in an oblique manner from the root. The Natal variety is decidedly taller, with slightly larger flowers, and this plant, which has been naturalised in the Ceylon

The Rose maggot curls itself inside the leaves; they should be picked out and destroyed. Syringe all trees affected by this and other insect pests with a solution of soft soap, tobacco water, and quassia. Apply the insecticide during the evening and wash it off again with clear water the following morning. The frames can be removed altogether by the end of the month from plants on their own roots, and being plunged and thus kept damp at their roots and stimulated with the manure and the night dews, they will make robust plants by the end of the season. The strongest can be re-potted into 5-inch pots, but care must be taken not to unduly disturb the ball of the plant. In dry weather pot plants will require an abundance of water, except the early forced H.P.'s that will now soon be placed outside. The permanent planting of Teas and Noisettes as recommended last month can be proceeded with, assuming that the beds have been well prepared for their reception. Early forced plants of Tea Roses should be placed in a cool house and be kept rather dry at their roots. Remove all exhausted growths, and after the plants have rested top-dress them with some rich material, and well ply



FIG. 122.—*MORÆA IRIDIODES* FROM THE CAPE.
(See page 296.)

the syringe upon them, when a further crop of flowers will be secured this season. If the new shoots on established plants outside become, at the end of the month, too crowded in the middle of the bush, thin out the weaker. All the plants of H.P. Roses that were forced early should be well hardened off before being plunged or stood outside on ashes all the summer. These are often neglected, but they are invaluable for early forcing another season, as they respond much better to artificial heat than freshly potted plants taken from the ground in October; these also flower in advance of the newer plants. The autumn and spring-grafted Roses under-glass can be hardened off and plunged in beds 4 feet in width, in the open. Any that require it should be given a shift into 6-inch pots and be plunged 10 inches to 1 foot apart up to the rims of the pots. When the plants are all plunged top-dress the beds with fermented manure. If the longest and straggling growths are stopped twice during the growing season and not later than the end of July, they will make nice compact specimen plants by the autumn. *J. D. G.*

TREES AND SHRUBS.

THE RED OAK *QUERCUS RUBRA*.

FOR a species of Oak that will succeed on sandy, poor soils, the Red Oak is one to be highly recommended to the notice of planters either for profit or colour effect in the autumn months, and for its rapidity of growth. Trees are known, which, although they are only 50 years old, have a diameter of 18 to 20 inches. The tree begins to bear seed when about 15 years old, and this fetches good prices—100 lb. selling for £2 sterling. The wood is eagerly sought after by makers of chairs, tables, and cabinet work generally. Like Oaks in general, *Q. rubra* has produced several sports and seedling varieties, of which *Q. rubra macrophylla* is much admired. This particular variety produced a seedling with handsome, large leaves in Signor G. Sada's garden at Milan, and received the commemorative varietal name Sada in consequence. *F. M.*

CAMELLIAS OUT OF DOORS.

THE old belief that the Camellia is a greenhouse shrub is hard to disprove, especially to those who have never seen it outdoors in full perfection; but here we find it is quite as hardy, or even harder, than the Bay Laurel, and certainly much more handsome. The primary use of the Camellia outdoors is as an evergreen, except in favoured spots, and we find here that the blooms are cut by spring frosts about three out of every four years. But when in flower at its best out-of-doors, the plant is even more beautiful than when flowering under glass, for the colour of the flowers and the glossiness of the leaves appear of enhanced beauty by the generally dull appearance of the other outdoor subjects growing near them. The Camellia is not a difficult plant to cultivate, its chief requirements being a fairly good soil and shelter from north and east winds. The latter provision is important to preserve the flowers from injury; the foliage is rarely, if ever, injured during ordinary winters. Camellias can be transplanted readily, and with ordinary care a specimen of almost any size can be moved with safety. The plant is impatient of fresh manure close to its roots, but it delights in ground that has been well manured for a former crop. A Camellia will often outdoors become stunted and slow of growth. When such is the case it should be cut back to the three-year-old wood, and be given a mulching of well-rotted manure. When the young shoots have grown an inch or two long the plant should be lifted and re-planted, after a dressing of leaf-mould or peat has been incorporated in the soil. If the "ball" has become hard it should be loosened, so that the roots will be able to reach the fresh soil.

The best varieties for culture out-of-doors are the single white and single red, *alba plena*, *imbricata rubra*, *Monarch*, and *Donckelaari*. The last-mentioned is the best known to me for planting outside, for the flowers are not readily injured. White flowers are disfigured by rains, but the injury is not so readily seen on the red flowers. There are some very fine specimens of Camellias in the neighbourhood of Windsor, and others at Bournemouth. *J. C., Bagshot.*

EPIGÆA REPENS.

THIS delightful little creeping plant is now finely in flower at the base of a large specimen of *Larix europæa*, which affords the necessary shade, and its snowy-white flowers scent the air. The plants are grown in a mixture of peat and fibrous loam, with some large sand stones. The species is a native of North America, and was introduced in 1736.

POLYGALA CHAMÆBUXUS.

THIS dwarf-growing evergreen shrub rarely exceeds 9 to 12 inches in height, but at the present time it is a conspicuous plant in the Alpine garden. It bears a profusion of fragrant yellow flowers.

AZARA MICROPHYLLA.

THE sweet smelling flowers of this evergreen are always welcome. Plants 20 feet high in the open have been profusely covered with small yellow flowers which have a fragrance resembling the odour of good chocolate. The plant grows quite freely in the stiff soil here when it is once established. *W. A. Cook, Leonardlee Gardens, Horsham.*

THE ALPINE GARDEN.

ANEMONE BLANDA VAR. SCYTHINICA.

THE above-named form of *Anemone blanda* (fig. 123) is one of the most beautiful of all spring flowering plants, and one deserving of a widely-extended cultivation. The plant is of more than ordinary value, inasmuch as its period of flowering does not coincide with the well-known typical kind, which opens its flowers of varying shades of blue and violet in warm, sunny situations in February and March, while the variety *scythinica* commences its flowering quite late in March and continues flowering through the month of April. A feature of the plant is the rich gentian-blue colour of the exterior of the petals, and seen in the bud stage this rich colouring is most effective. The inner surface of the petals is of pure white, the expanded blossoms being about the size of a crown piece.



FIG. 123.—*ANEMONE BLANDA* VAR. *SCYTHINICA*.

When in flower the plant is some 6 inches high; it has much divided and more erect and compact leafage than in the type *A. blanda*. There are usually two rows of the linear petals in this particular variety, which comes from North Kurdistan. *A. b. var. cypriana*, which is given as synonymous in the *Kew Hand-list*, is distinct in many ways, but more particularly in the broader divisions of the leaves, the obovate obtuse petals, and its much later period of flowering. As an effective garden plant, the variety *scythinica* should be placed first. All these forms of *A. blanda* should be placed where the sun can reach them, and if grown in very sandy and well-drained loam, they give but little trouble. Upon the tuberous roots of these plants are to be found nipple-like excrescences, and when dividing the roots each one of these points will presently form a plant. Young plants are easily raised from seeds, the seeds being produced in small cone-shaped heads. It is important to note, however, that these cone-shaped seed heads turn right over till the point of the cone is buried in the soil, and often it becomes completely hidden by the leaves of the plant, and the seeds, most frequently shed while comparatively green-looking, are carried away by birds. The seeds are usually sufficiently mature for gathering early in June, and should be handled with care, for they are detached by the slightest touch. *E. H. Jenkins.*

NOTICES OF BOOKS.

THE CONGO AND ITS FLORA.

Two publications relating to the botany of the Congo await notice. They are issued under the auspices of the Government of the Independent Congo State, and form very important additions to our knowledge of the flora of tropical Africa. They will be of great service to those engaged in the rubber industry, as well as in the plantations of coffee, cocoa, cotton and other tropical products.

Emile Laurent was a pupil of the School of Horticulture at Vilvorde; Leon Pynaert, the son of Edouard (whose memory is so cherished by his friends), was a student of the School of Horticulture at Ghent. To those two, not to mention others less known to horticulturists, students of the African flora are under great obligations.

ETUDES SUR LA FLORE DU BASSET DU MOYEN-CONGO, par E. De Wildeman, vol. ii., fasc. i., plates i.-xxxv.

This consists of an enumeration with descriptions and quarto plates of various new and interesting plants from the Belgian Congo. The descriptions have been prepared by M. De Wildeman. Several of the plants are in cultivation in the Brussels Botanic Garden, or that at Laeken, such as *Crinum Laurentii*, *Polystachya polychæta*, *Listrostachys Pynaertii*, and others. *Barteria fistulosa*, Masters, is remarkable for its hollow stems, which are the abode of ants endowed with such stinging power that no one having once obtained a specimen will care to collect another.

MISSION EMILE LAURENT, fasc. iv., pp. ix.-cxx. et 355-450; pl. cvii.-cxlii.

This fascicle contains a biographical notice of the gardener-botanist of whom not only his countrymen but his scientific colleagues of every civilised country deplore the loss. It would be difficult, if not impossible, to raise a better memorial than is afforded by this publication. Not only are there many plants enumerated and figured, but numerous very interesting photographic reproductions of scenery, plant distribution, and the like serve to give the stay-at-home naturalist a good idea of the vegetation of the country and of the conditions under which it grows. The text is prepared by M. De Wildeman, a sure guarantee of care and ability.

A Royal decree in Brussels has authorised the Belgian Ministers of the Interior and of Public Instruction to accept for the Royal Academy a sum of 15,000 francs, which was collected by the Comité Laurent, to provide a biennial prize of 900 francs for an award to be known as the "Prix Emile Laurent." The prize will be awarded alternately, first, to the Belgian author or authors contributing the best work on the flora or vegetable productions of the Congo; second, to the Belgian author or authors for the best work on the agricultural and horticultural applications of such plants.

The Week's Work.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Phalænopsis.—Such species as *P. aphrodite*, *P. amabilis*, *P. Schilleriana*, *P. Stuartiana*, and *P. Sanderiana* will in some cases have completed flowering. The plants frequently produce secondary spikes, but it is not advisable to allow these spikes to grow, as they would have the effect of weakening the plant. Any fresh spikes that may appear should, therefore, be at once pinched off. The *P. Rimestadtiana* varieties are now showing strong spikes of bloom. Expose the plants to all the light possible without actual sunshine, and keep their surroundings fairly moist. Any plants which have just passed out of bloom and require fresh receptacles should be placed in fresh teak-wood baskets. The roots are very liable to suffer injury during their removal from whatever material they may be clinging to, therefore if the baskets in which they are growing are already large enough, and the plants are in a thriving condition, they may be treated as follows:—Carefully work out all the old potting materials, and with the syringe and tepid water thoroughly wash the basket; cut out all dead roots, and then replace the

drainage material, which should be to three-fourths of the depth of the basket, and fill up with sphagnum-moss and finely-broken crocks, taking care to press these moderately firm around the base of the plant. Cover the whole with freshly-gathered sphagnum-moss. Such plants as have to be placed in fresh receptacles should be removed from the old baskets as carefully as possible. For the first few weeks after the operation, the plants will require very careful watering; keep the surface of the moss and the sides of the basket well sprayed, but not so heavily as to cause saturation. When young roots begin to extend over the wood of the basket, the sprayer may be more frequently employed. When in full growth, *Phalænopsis* require an atmosphere that is nearly always at saturation point, and at the same time plenty of air should be admitted by means of the top ventilators. Where no separate house is provided for their cultivation, the best position for them is on the shady, or north side, of the East Indian house, or the ordinary plant stove. Such species as *P. Sumatrana*, *P. violacea*, *P. Mariei*, *P. speciosa*, *P. tetraspis*, *P. Luëddemanniana*, and *P. fasciata* should be placed together at one end of the house, in order that extra shade may be provided for them, as their green foliage is very easily injured by the sun. Sponge the leaves over periodically to free them from all dust and insects.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Plumbago rosea coccinea superba.—This plant is worth inclusion in any collection of winter-flowering plants, its light, graceful sprays of flowers being particularly elegant for all decorative purposes. Although its lasting qualities are not of the best, the profusion of successional flowers in a measure atones for this defect. If the growths of the old plants were shortened after the winter, and the plants returned to a warm house, they will have made shoots by this time suitable for use as cuttings. These should be prepared for propagating purposes without delay, and after insertion in sandy soil be placed in the propagating frame. When roots have been made, pot the plants singly, using light, sandy soil, and cultivate them all the summer in an intermediate temperature, pinching out the points of the shoots once or twice. Shade the plants lightly during the hottest part of the day, and syringe well and frequently during the growing season. Reduce the atmospheric moisture, and admit more air to the structure at the end of the summer, in order that the growths may be better mature. Let the plants flower in a fairly dry atmosphere of a minimum temperature of 60 degrees.

Gardenias.—Good "cuttings" being now plentiful, a batch should be taken off and inserted in light, sandy soil in pots, placing the pots in a hot frame. Stout young shoots will form the best cuttings. After the little plants are rooted and have been potted once, pinch the points out of the shoots to induce a bushy habit. *Gardenias*, when in full growth, require stove temperature and much atmospheric moisture. Older plants may be repotted, using a compost consisting of equal parts of turfy-loam, peat, and leaf-soil, with sand and charcoal added. Keep a sharp look-out for Mealy-bug and Thrips, to attacks of which *Gardenias* are very susceptible.

Medeola asparagoides.—Where decorative work has to be undertaken, a good batch of this plant is indispensable. Young plants grown from seeds sown in January are now making nice growth, and should be potted on as required before the roots become pot-bound, using a compost of two parts loam, one of manure from a spent mushroom-bed, and one part of leaf-soil, adding some sand. When in full growth this plant requires plentiful supplies of water at the root, and may be afforded regular supplies of a stimulant, whether in the form of natural manure and soot water, or chemical plant manure. Rather heavy shading is desirable, as if exposed to direct sunlight the plants lose that pale green tint so much admired. A convenient way of training the growths is to use green Carnation twine. The growths will climb round these, and when desired the strings may be cut with the growths, and they will be unnoticed amongst the leaves, &c., when used for decorative purposes.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

The Orchard house.—Fruit trees in pots, including Apples, Pears, and Plums, having now set their fruits, the thinning of the latter must at once be attended to. Remove all the side fruits from clusters, but do so at intervals of a few days, as fruit-thinning is best done by degrees. Those on spurs pointing to the centre of the tree may be first removed, leaving only those which are well exposed to the light. A second thinning will be required when the fruits are of the size of a Filbert, finally leaving only the best-formed fruits to develop. Do not over-crop the trees, especially if fruits of the best quality are required. Syringe the trees both night and morning, and admit abundant supplies of fresh air daily, also at night-time, when the weather is favourable. In the case of young trees allow the growths to extend considerably before pinching them. Shoots on older trees may be stopped more closely. An important item in the culture of fruit trees in pots is to top-dress each plant when actively growing with a mixture of fresh loam, chemical manure, or horse-droppings. Look for and capture caterpillars, which may be found in curled leaves, destroying any that can be found, by squeezing between the thumb and the finger.

Melons.—Attend to the watering of the borders, the tying of the growths, and the thinning of the fruits. Two, or, at the most, three, fruits will be ample for each plant to carry. Do not allow one fruit on any plant to swell in advance of the others on the same plant. Pinch strong growths, and allow the lateral shoots to extend throughout the season of growth: this will necessitate active root growth until the fruits are ripe. As soon as the fruits commence to colour afford ventilation freely, also keep the atmosphere of the structure in which they are growing much drier, and give less water at the roots. Afford a top-dressing of fresh loam or long manure for the purpose of furnishing food and keeping the border moist. Sow seeds for raising succession plants.

Later batches of Melon plants in 6-inch pots should now be planted into frames or pits previously prepared for them. Maintain a bottom heat of 80° in the pits, and keep the atmosphere moist by damping the paths with tepid water. Close the structure early in the afternoon when the inside temperature registers 90°. The temperature of the Melon pit by day without sunshine should range from 78° to 80°, and at night-time 70° must be maintained.

Cucumbers and Melons may now be planted into box frames containing leaves and horse litter which will furnish a bottom heat of 70°. Allow two plants to each light, and plant on the top of a ridge of soil, and close to the glass. Stop the ends of the main shoots, give a good watering with tepid water, and keep the frame close for a few days after planting.

THE APIARY.

By CHLORIS.

Wasps.—Bee-keepers and gardeners are well aware of the damage done by wasps later in the season. Every queen wasp now killed means one nest less later. Queens may often be seen on buds, and old boards nibbling off pieces with which to build their nests. A piece of light flat board is very useful for the purpose of catching them, and brings them to the ground with ease. Nests are easily destroyed later by placing a piece of cyanide of potassium at the mouth of the hole by which the wasps enter the ground, and wetting it with a garden watering pot with a fine rose, once or twice, at the same time removing the dead wasps with a stick.

Bees and fruit.—In California Cherry orchards were of no value until an apiary was established in their midst, and in this country, since the late Mr. Gladstone recommended fruit farming and jam-making as an industry, much greater quantities of fruit have been secured, where bees have been kept near the trees, and not only has there been greater fruitfulness, but £200 to £300 has been made from the sale of honey and wax. When fruit trees are in bloom there are more bees on the wing than any other insects. One hive is generally sufficient for an acre of ground.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bickton, East Devon.

Current bushes.—Green and black aphids are common enemies of these plants, and if any are present on the bushes they should be syringed with quassia extract, using half a pint to four gallons of water. Well stir the liquid before applying it, which should be done about 5 p.m. in the day, or later. Give the bushes a good cleansing with the garden engine next morning. The Gooseberry Saw-fly sometimes infests Currant bushes, especially if the latter are planted near Gooseberries. They should be destroyed, as recommended in last week's Calendar. All swollen buds on Black Currant shoots must be picked off and burnt. The Black Currant is later coming into flower than the Red and White varieties, and therefore the syringing in that case must be deferred until the berries are formed.

Pears.—The recent hailstorms have caused much injury to these trees in many parts of the country. Young fruits damaged by the Pear-midge quickly turn black, and later fall to the ground; these should be picked off and burnt as soon as they are detected. All protective material should be removed immediately the trees have passed out of flower.

Figs.—If milder weather sets in, growth will be quickly made, and many shoots will need to be removed. Rub out any ill-placed shoots while in a small state; this system is much better than the use of the knife later. Any main branches that have reached their allotted space should have the point of the main shoot pinched out at the fourth leaf. Branches required for extension need no stopping, as only one crop of fruit is possible from trees in the open.

Hoeing.—Should the weather continue moist, it will be wise to hoe and rake away all weeds, choosing a dry day if possible for the operation. Avoid removing too many of the smaller stones with the weeds, as the stones may have a beneficial influence on the soil, especially if it is of a heavy or adhesive character. Many common and troublesome weeds produce seeds when in quite a young state, and their seeds are easily dispersed by wind all over the garden.

PUBLIC PARKS AND GARDENS.

By W. W. PERRIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Summer bedding.—The season for putting out summer bedding plants is approaching, and most gardeners have probably decided already what their various arrangements for the season are to be. Few subjects, as a rule, cause more anxiety to gardeners in general and park superintendents in particular, than the question of summer bedding. In many towns this is often the feature by which the public judge the merits of their parks, hence it is but natural that much time and care are bestowed by superintendents upon the preparations for this work. Try as one will, it is exceedingly difficult to break away even in such a matter as summer bedding, from old forms and customs. Originality of arrangement, or in the combination of various species of plants that would be in keeping with modern taste, in the furnishing of flower beds is exceedingly difficult of attainment, and it is no uncommon thing to see a design planted year after year in the same manner, without the slightest variation either in arrangement or material. As the whole system of bedding out is at best somewhat monotonous in character, every effort should be made to vary it as much as possible, so that at least the same arrangement may not be used two consecutive seasons in the same beds.

Pelargoniums.—Viewed from whatever standpoint one chooses, it must be admitted that our system of bedding out is artificial in the extreme, and the fashion of using half hardy plants of the Pelargonium type so freely, makes it, in addition, a very expensive form of garden adornment. Notwithstanding this, however, long association inclines most of us to regard Pelargonium as an indispensable part of garden arrangement. Closely-trimmed and well-kept lawns, studded about with numerous and diversely-shaped beds filled with brightly-coloured flowering or foliage plants, are usually associated with the idea of high-class gardens and public parks, and so long as this is regarded as the ideal of the English flower garden, so long will those who have to satisfy the public taste continue the system.

Succession of flowers.—In public parks it is the aim to have some or other of the flower beds or borders bright and showy from the earliest to the latest part of the season, so that it is necessary to utilise a great number of different kinds of plants to maintain a succession of bloom. When much bedding out is done in a park, it is advisable to arrange that the whole of the floral designs are not at their best at one time.

Carpet-bedding.—If the use of Pelargoniums, Fuchsias, Dahlias, Begonias, and Calceolarias for bedding purposes is characterised as artificial, how much more so is the use of Alternantheras, &c., for the purposes of carpet-bedding. Whatever may be urged against the formality of ordinary bedding, the plants are at least allowed to develop and show some of their natural characteristics—an argument which cannot be advanced in favour of all those used for carpet-bedding. This style of using plants is the most expensive, unnatural, and useless carried out under the name of gardening, and yet, as it appeals to the innate love of the curious which is possessed by the great majority of visitors, carpet-bedding finds a place in nearly every public park of any size throughout the country. True plant-lovers cannot tolerate the puerile and meaningless imitations of clocks, rolls of carpet, and church windows, which some sections of the community regard as little short of the acme of horticultural skill. It is undoubtedly a very great temptation to those in charge of parks to pander to public taste in this matter, but not only should this be avoided, but an effort should be made to educate public taste into better channels.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Onions.—Plants raised from seeds sown in heat early in the year, and that were subsequently pricked off, should be in a well-hardened condition and ready for planting out without delay. It is usual to do this work a fortnight or so earlier than the present time, but as rough, northerly winds and sharp frosts have been so prevalent throughout April, there would have been no advantage gained had tenderly-reared vegetables been planted in the open at an earlier date. If extra large bulbs are required, it will be well to put the plants at 9 to 12 inches apart in the rows, and the rows should be drawn at 15 inches apart. If the weather is showery at the time of planting, no further watering will be necessary, but otherwise a good watering should be applied. It is assumed the ground for this particular crop was thoroughly prepared early in the winter, and that it has mellowed down into a friable condition. Lift the plants with as much soil attached to the roots as possible, and plant them as shallow in the soil as practicable and consistent with making them firm.

Winter Onions.—These will now be starting nicely into growth, and should be afforded a sprinkling of nitrate of soda, which should be well worked into the soil with the hoe. If three dressings are given at intervals of a fortnight, and then alternated with a mixture composed of dressings of kainit 3 lb. and superphosphate 5 lb. per 40 square yards, a great improvement will be observed.

Beet.—Plants raised from the small sowings made early in the season will now be making good progress. Continue to give these the protection of old Yew boughs laid on the ground; any that are partially bare through the leaves withering and falling off will answer this purpose well, as they will afford the amount of protection that is necessary, but at the same time admit sufficient light and air to the young plants. No advantage is gained by sowing seeds for the main crop before this date, as for general purposes large Beetroots, or any that might be described as coarse, are to be avoided. The ground for this crop should be tilled and prepared in the winter, and, although this cannot always be arranged, under no circumstances should the main crop varieties be sown on recently-manured ground. The same treatment is necessary for Carrots, Parsnips, and most of the other root crops. The seed should be sown in drills not more than 2 inches deep, and drawn at distances of 15 to 18 inches apart, according to the different varieties, eventually thinning out the young plants until they are from 6 to 9 inches apart.

Early Potatoes.—Fresh plants will appear above the surface of the soil every day, and they will require to be closely watched that sufficient soil may be drawn up to them to protect the young growths from frosts. The system of propagation by taking off the young growths, which was practised a few years ago when the variety Northern Star was being boomed, does not appear to be a success, as plants so raised, including those varieties advertised as being capable of resisting disease, appear to be so weakened by the process, that tubers grown from the plants have been attacked in the following season to an unusual extent. Additional plantings of Potato tubers should still be made, and might be continued for some time to come, as late plantings would materially lengthen the season for "new" Potatoes, which are so generally appreciated at any time of the year.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Herbaceous plants.—Both the tree, or moutan, and the herbaceous Pæonies should now be afforded some support against wind. The main branches of the tree varieties should be tied to stakes. In respect to most of the older varieties of the herbaceous Pæony, it will suffice to tie up the whole plant, taking care not to bunch it too tightly. The flowers of the newer sorts are so large and heavy that they must be tied separately. Thin out the weak growths of the perennial Sunflowers, Delphiniums, Lupins, &c. As the Arabis and Aubrietias finish flowering they must in many cases be restricted or they will be apt to grow out of bounds. Use the Dutch hoe frequently to keep down weeds, and assist in the aeration of the soil.

Pentstemons and perennial Phloxes should be planted out in their flowering quarters, which were prepared last month. Pentstemon seed recently sown in heat has germinated freely. After the seedlings have recovered from the check of pricking off they should be gradually removed to cooler conditions.

Border Chrysanthemums may also be planted out. Plant them firmly, or the roots of the plants will not only dry quickly, but the shoots will be weak and spindly. When the plants are established pinch out the tops of the leading shoots, and should dry weather set in afford a mulching.

Bedding Begonias.—Both the tuberous and fibrous-rooted varieties should now be sufficiently advanced to be transferred to cold frames. Place the plants on a cool ash-bottom, setting them well apart. After the first two or three days the lights should be removed whenever the weather will allow, the object now being to harden the plants before they are planted in the flower beds. For the first week it will be wise to cover the frames at night.

Narcissus poeticus plenus.—The tips of the flower sheaths should be snipped with a pair of scissors, as a precaution against "blind" flowers.

Cacti.—As the winter frames will be removed in a fortnight, the lights should be taken off by day and tilted at night whenever weather permits. If the plants are dry at the root, give them a copious watering on a fine morning with chilled water. The surface pieces of sandstone should be taken away and replaced by freshly-broken stone, first stirring the surface soil and removing all weeds. If a sheltered corner can be had, well exposed to the sun, and a raised rockery made, many species of Cacti may be grown out-of-doors unprotected for a great part of the year. As winter damp, rather than cold, is the greatest enemy of these plants, some preparations should be made for keeping them dry during winter—preferably by means of portable frames. Ample drainage must be provided, and a soil composed largely of fibrous loam, with enough broken rubble to keep it open. Pieces of some porous substance, such as soft sandstone, old red brick, or charcoal should be placed around the plants to absorb superfluous moisture. As the nucleus of a collection, the following kinds can be recommended:—*Cereus phoeniceus*, *C. Fendleri*, *C. Engelmanni*, *C. gonacanthus*, *Echinocactus Pentlandi*, *E. Simpsoni*, *Mammillaria vivipara*, *Opuntia arborescens*, *O. brachyarthra*, *O. camanchica*, *O. c. minor*, *O. Piccolomini*, *O. Rafinesqui*, and *O. vulgaris*.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, MAY 14—

Roy. Hort. Soc. Coms. meet.
British Gard. Assoc. Ex. Council meet.

SATURDAY, MAY 18—German Gardeners' Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—52° 8'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 8 (6 P.M.): Max. 65°; Min. 49°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 9 (10 A.M.): Bar. 29.8; Temp. 65°; Weather—Slight rain.

PROVINCES.—Wednesday, May 8 (6 P.M.): Max. 51° Cornwall and Ireland S.; Min. 50°; Folkestone.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Gladiolus, Montbretias, Begonias, Lilliums, Stove and Greenhouse Plants, Palms, Bays, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

THURSDAY—

Sale by tender of Warwick Road Nurseries, Bristol. Auctioneer, Mr. Albert Ford, Albion Chambers, Bristol. Tenders to be received before 12 o'clock noon.

FRIDAY—

Choice Imported and Established Orchids in variety. Orchids in flower and bud, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Colonel Prain presided at a recent

Rubber. meeting of the Society of Arts,

when the subject of cultivation

of trees and plants yielding rubber was brought forward by Mr. Herbert Wright. In the course of his remarks, the Chairman (the Director of the Royal Gardens, Kew) uttered a warning note as to the possibility of epidemic disease breaking out in the plantations, as it had done in the case of coffee in Ceylon. When large areas are planted with trees or plants generally in juxtaposition, it is evident that the conditions are eminently favourable for the spread of disease. The danger may be averted or minimised by the precautions advised by a competent pathologist, and by the care and supervision exercised by the cultivator.

In connection with the supply of rubber it should be borne in mind that the production of caoutchouc by chemical means, already proved to be possible, may ultimately compete with the natural product. Again, there is the risk of over-production, as has happened in the case of the Cinchona. More than one speaker, we are glad to note, recognised the value of the services rendered by Kew in the extension of the rubber industry in the various colonies and dependencies where the cultivation is possible. Manufacturers and brokers concurred in expressing their thanks to Kew and the Colonial Office, because it was to their efforts that the wonderful success which had been achieved by

the industry was due. To Sir William Thiselton-Dyer much credit is also due for his work in this direction during his directorate. Very few of those who go to Kew to "look at the flowers" or gape at the water-fowl have any conception of the work done in acquiring and raising plants of industrial or economic importance, in distributing them, and in promoting their cultivation in the Colonies.

Mr. Wright's paper contains an admirable summary of our knowledge as to the commercial potentialities of rubber cultivation, and the plants furnishing the valued juice in various tropical countries. From this latter point of view, Mr. Wright emphasises the necessity for correctly identifying the valuable caoutchouc-producing species from others similar in appearance, perhaps, but less important, or not important at all, from the point of view of rubber production. Here, again, the value of the herbarium at Kew is illustrated. Details concerning the collection and preparation of the rubber were also given by Mr. Wright, whose communication is therefore one of great value to all concerned in the industry, as containing in short compass a classified summary of what is known of rubber in its various aspects.

With regard to the durability of rubber, one of the speakers in the discussion that ensued on Mr. Wright's paper stated that "the archway under Euston Station was paved 18 years ago with a rubber composition, and during that time it had only worn to the small extent of five-eighths of an inch. It had been clearly demonstrated that, compared with wood, asphalt, and pavings of that description, rubber worked out much cheaper in the long run, because of its enormous durability."

OUR SUPPLEMENTARY ILLUSTRATION is a reproduction from a photograph taken by Mr. GREGORY in the exceedingly interesting gardens of Sir EDMUND LODGE, Bart., at Leonardslee, near Horsham, in Sussex. The view represented is one in a portion of the grounds known as the American Garden, which is planted with a rich collection of Rhododendrons, including the less hardy species; Ericas, Ledum, Camellias, Gaultherias, Kalmias, and other flowering shrubs. The stems of many of the indigenous trees are gay in June and July with the flowers of rambling varieties of Roses, but as a foil to the extraordinary amount of colour furnished by the Rhododendrons and Roses there are grand clumps of Bamboo and a large number of hardy Palms [Trachycarpus]. Few gardens, indeed, possess so many hardy Palms as may be seen at Leonardslee, there being about 400 plants in healthy growth. As the photograph was taken when the deciduous trees were leafless, the fine effect of the Palms on the landscape in winter is well shown in the illustration. A detailed account of the Leonardslee Gardens, which are in the care of Mr. W. A. COOK, was published in these pages on Oct. 13 and Oct. 26, 1906.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will be held in the Society's Hall, Vincent Square, Westminster, on Tuesday next, May 14. In the afternoon at three o'clock a lecture will be delivered on "Photographs of Flowers."

HORTICULTURAL CLUB.—The next house dinner of the club will take place on Tuesday, May 14, at 6 p.m., at the Hotel Windsor, when Mr. P. ANDERSON GRAHAM will deliver a lecture on "Small Holdings."

THE ROSE SHOW.—Some of our readers will be glad to be reminded that the exhibition held annually by the National Rose Society will be open in the Royal Botanic Gardens, Regent's Park, on July 4. All applications for space must be made to the secretary before the end of June.

AN APPRECIATION OF SIR JOSEPH HOOKER.

—*The American Florist* for April 20 contains a brief biography and a portrait of Sir JOSEPH HOOKER, in which due mention is made of his long and valuable services to botany. Sir JOSEPH HOOKER attains his ninetieth birthday this summer, and the "veteran English botanist is still straight and active and a keen worker."

THE OXFORD PAGEANT.—A prospectus has reached us of the Pageant which it is proposed to hold at Oxford during the last three days of June (except Sunday, 30th) and the first three days of July. The commemoration will, of course, be historical in character, and is in aid of the Radcliffe Infirmary and other charities. The prospectus contains some interesting pictures of Oxford in the past.

"PUNCH" PICTURES FOR PARIS.—Our famous contemporary has recently exhibited a collection of upwards of 100 drawings, executed by the more famous living *Punch* artists, and which are to form a portion of the forthcoming exhibition at the Salon des Artistes Humoristes, to be held from the 15th instant to June 30 in Paris. The drawings were on view in the *Punch* dining-room, where the famous weekly dinner is held.

HORTICULTURE IN EGYPT.—The EARL OF CROMER, late British Agent and Consul-General, in his annual report lately received at the Foreign Office, remarks that there can be no doubt there is much land in Egypt which is singularly suitable for market gardening, and which could very profitably be devoted to that purpose; also, that many trees could be grown on land which is practically useless for any other purpose. It has now been decided to grant a Government subvention to the Agricultural Society at Alexandria on the condition that the money shall be used for horticultural purposes. For the rest of Egypt, a new horticultural society has been formed, entitled "The Commercial Horticultural Society of Egypt," with Prince HUSSEIN PASHA KIAMIL as president. The Government has assisted this society with a considerable subvention, and has given it further facilities as regards the use of land, &c. As a commencement, two gardens (one of some 5 acres and the other smaller) have been started in the immediate vicinity of Cairo, and an English secretary, Mr. T. BROWN, has been engaged to carry on the work of the society, more especially with regard to making experiments as to what varieties of vegetables and fruits can be most profitably grown in the country. He is further charged with the education of a certain number of young Egyptians in all matters pertaining to his profession, such as vegetable cultivation, grafting of fruit and other trees, and other matters which are little understood in Egypt. It is hoped eventually to start experimental gardens in all the big provincial centres, where not only experiments will be carried out, but ocular demonstrations given to the cultivators as to the possibilities of Egypt in this direction. All who have paid attention to this subject lay much stress on ocular demonstration as by far the best, if not the only, way of convincing the Egyptian cultivator that horticulture can be successfully and profitably carried out. The encouragement of arboriculture will also form an important duty of the new society. Later, should the society's labours be crowned with success, it will act as the middleman between the producer and the merchants until an adequate connection has been established between the two.



Photo by J. Gregory.

THE AMERICAN GARDEN AT LEONARDSLEE, HORSHAM, IN JANUARY,
SHOWING HARDY PALMS, ETC.

FLORAL DESIGNS.—Mr. W. D. WILTSHIRE has re-published in pamphlet form and with additions some designs for bouquets and wreaths that have been given in the *Fruit, Flower, and Vegetable Trades' Journal*. He gives many reproductions, from photographs, of floral arrangements of all sizes from button-holes to elaborate funeral devices. Many of the latter demand not merely a wealth of flowers, but a special faculty for their construction. It is impossible to teach the whole of the wreath-maker's art in writing, but the pictures provide many suggestions, and there are some useful hints to aid the amateur florist in constructing decorations. This amateur industry affords employment to many workers who are, naturally, desirous that it shall remain popular. That anchors, harps, and other devices should be constructed of flowers is not in accordance with good taste.

A CONCISE HANDBOOK OF GARDEN ANNUAL AND BIENNIAL PLANTS. By C. M. A. PEAKE. (METHUEN & Co., 36, Essex Street, W.C.).—This little book is one of a series, and therefore uniform with others and subject to certain restrictions as to space. Mr. PEAKE wisely makes special mention of desirable plants, whether familiar or not, and passes lightly over certain popular but comparatively worthless varieties. The notes upon annuals and biennials and their cultivation are followed by a useful alphabetical list, with descriptions and comments where necessary. Many illustrations and a full index further assist the enquirer after knowledge, and the whole makes a handy guide that may be trusted as regards the matters of which it treats.

FOOD-REQUIREMENTS OF HYBRID CLIMBING ROSES.—A recent part of the *Journal de la Société Nationale d'Horticulture de France* contains a paper by M. G. TRUFFAUT on the food requirements of hybrid climbing roses. The author chose for his various experiments the sturdy and well-known Rose Madame Ulrich Brunner, and with the assistance of M. COCHET-COCHET and other growers was able to work on a large scale. The results obtained by the various food-constituents are summarised as follows:—The mixture of nitrates and phosphoric acid produced very fine growth, extra large flowers, early, and well coloured. Complete manures poor in potash yielded excellent results, even in soils rich in nitrogen and in phosphoric acid. Roses should be grown in clayey or in clayey-siliceous soils, not over rich in humus. I advise, says M. TRUFFAUT, for manuring roses in the open ground in autumn, a little cow manure, and in spring to spread on each square metre (rather over 3 feet) 50 grammes of precipitated bone phosphate, 30 grammes of burnt horn, 10 grammes of dried meat, 10 grammes of dried blood (1 gramme=15.4,324 grains). The whole to be forked in. Then, after June 15, the plants should be watered with a solution of 1 gramme per litre (1 litre=35.2,154 oz.) of the following mixture: 50 per cent. phosphate of ammonia, and 50 per cent. nitrate of ammonia; this gives 23 per cent. of nitrogen and 22 per cent. of phosphoric acid. By following these directions, by appropriate pruning, and leaving a moderate number of flowering shoots, bloom will be maintained until November, the flowers being large and fragrant, the stems firm and branching, the foliage dark green and shining, thick, and resisting rust and mildew.

THE FOREST FLORA OF NEW SOUTH WALES.—Mr. J. H. MAIDEN has issued part 2 of Vol. III. of his publication (part XXII. of the complete work), and it contains descriptions and plates of the Hill Flindersia (*F. collina*), Broad-leaved Messmate (*Eucalyptus obliqua*), and Cedar Wattle (*Acacia elata*). Vol. III., part 8 (or part XXIII.), contains *Dysoxylon Fraserianum*, *Eucalyptus vitrea*, and *Acacia decurrens*.

CHRYSANTHEMUM SPORTS.—No definite conclusion has been arrived at as to the cause of these productions, but every addition to our knowledge brings us nearer to the goal. On this account we call attention to a statement by M. CLEMENT in *Le Chrysanthème*, to the effect that, in nine cases out of ten, the change is from light colouring to a darker shade. That yellow should be prominent in these sports is only what might have been expected from the ancestry of these plants. A yellow Chrysanthemum is said rarely to produce a white flower, but a white variety may show yellow flowers; a red variety will throw maroon coloured blooms, a rose coloured form will sport into a salmon coloured one.

WINTER-FLOWERING CARNATIONS.—Under the name of Anglo-American Carnations Mr. LAWRENCE COOK gives, in the *Revue de l'Horticulture Belge*, a valuable article on these plants, summarising their history and methods of cultivation, and supplying a list of the more remarkable varieties. The "Malmaison" varieties are also included in the article which is copiously illustrated, though unfortunately process blocks are not to be relied on to reproduce the colours correctly.

THE QUARTERLY JOURNAL OF FORESTRY, a newly-established periodical, "supplies a want" in so efficient a manner as to promise great results in the future. It is edited by Prof. FISHER, of Oxford. The number before us contains, among other articles, one on the Osier bed in the Thames near Syon House, a plantation familiar to many visitors to Kew. The formation of an arboretum near Oxford will be watched with much interest. So far as plants are concerned, the nucleus is furnished by the collection shown a few years since by the late Hon. MARK ROLLE, at the Royal Agricultural Society's show, Park Royal, and noticed by us at the time. Mr. ELWES has an instructive paper on the effects of spring and autumn frost in the year 1905-1906, and there are various other papers of great interest to foresters of which we are only able to indicate the existence. No one can know better than ourselves how difficult it is to avoid misprints. We shall therefore, we hope, not be thought hypercritical if we point out that the Japanese Larch is *Larix leptolepis*—not "*Leptolepis*" as it is more than once printed in the journal. The names of the Japanese Spruces *Picea Hondoensis*, *Ajanensis* and *Alcockiana* are also mixed up. The publication is a welcome sign of the increasing attention that is now being paid to our woodlands, and will, we trust, do something to show that trees are of more value than rabbits, and, in the end, more profitable even than big game-bags.

LIFE AND FLOWERS.—By MAURICE MAETERLINCK. Translated by ALEXANDER FEIXEIRA DE MATTOS (London: GEORGE ALLEN, 156, Charing Cross Road). In M. MAETERLINCK's book we must not expect a treatise on scientific botany, nor instructions upon gardening. The author is a thinker and an enthusiast, and it is in writing of the things, visible and invisible, that make up his "life" that he alludes to flowers. For plants he claims that "none is wholly devoid of wisdom and ingenuity. All exert themselves to accomplish their work, all have the magnificent ambition to overrun and conquer the surface of the globe by endlessly multiplying that form of existence which they represent." In fact he credits plants with what we know as intelligence, with sense as well as sensibility, and with a soul represented by their perfume. It will be seen that the language used is ambitious, apparently the translator has faithfully rendered it, and the result is a chatty volume on various abstract and other matters. If we cannot agree with all M. MAETERLINCK's opinions, it will interest us to consider them, and not to judge them as if they were offered as undeniable facts concerning concrete substances.

REPRODUCTIVE ORGANS OF THE FIG.—M. LECLERC DU SABLON, writing recently in the *Comptes Rendus*, speaks of the method by which Figs are fertilised. There are, he says, two sorts of female flowers on the Fig. Those with a long style are found in most eatable species, and especially in the Smyrna Figs, which usually contain developed seed. The other flowers, with a short style, are found on what are called Caprifigs, the Figs of which are, generally, not eatable; the ovary of these flowers develops, but, instead of the seed, contains the larva of an insect of the Blastophagus genus, which is the agent in the pollenisation of the Fig; these are called gall-flowers. The short length of the style enables the Blastophagus, which thrusts its oviduct into the stigma, to deposit its egg in the nucellus of the ovule; this is impossible where the style is long. It may then be said that the short style constitutes a symbiotic relationship between the Fig and the Blastophagus. The importance of this dimorphism of female flowers has been proved by observations made by SOLMS-LAUBACH. Now, Figs of the second crop of the Caprifig, those which ripen in autumn sometimes contain seeds, although very few in number. SOLMS-LAUBACH found only 20 seeds in 40 Figs, but the condition of the materials did not enable him to discover if the flowers that had produced these seeds had a long or a short style. Nevertheless, writers who have since studied the question, admit a clear specialisation of the two sorts of flowers; those which have long styles, adapted for the production of seed and incapable of admitting the Blastophagus, and the others with short styles adapted for symbiosis with the Blastophagus, and considered incapable of producing seed. The study of Caprifigs pursued in the departments of the Gard, of Vaucluse, and of Ardèche, has shown the author that the Blastophagus exists normally in that region, which has not previously been recorded. Further, in Figs of the third crop from one of these Caprifigs, that is to say, in Figs that remain during the winter on the tree and ripen in spring, M. LECLERC has observed in the middle of gall-flowers inhabited by the Blastophagus numerous achenes containing well-developed seeds, with an embryo and albumen like those of the Smyrna Figs. He has further noted that the flowers that produced these seeds had short styles like the gall-flowers. This observation showed, first, that the Caprifigs can produce seeds, not only in the autumn Figs, but also in the winter Figs, which had not been previously noted. In the second place, the production of seed by the short-styled flowers showed that the specialisation of the two sorts of female flowers is not complete—at least, as regards the short-styled flowers. These are able to produce seed as well as to nourish the Blastophagus. The Caprifig cannot therefore be considered, as is often the case, as being the male Fig, whose part it is to produce pollen and to nourish the insect destined to transfer the pollen to a female plant. It is monocious, with separate male flowers and female flowers normally constituted, and may be taken as the type of a species. The Figs of the first crop, ripening in summer, include male flowers which produce pollen, and female flowers which support the Blastophagus; issuing from these Figs, the Blastophagus, covered with pollen, enters a Fig of the second or third crop, which normally includes only female flowers, and there may either deposit its eggs in the ovaries, thus ensuring the preservation of its species, or it may pollinate certain flowers, which will produce seed destined to reproduce the Caprifig. But flowers producing seed are of exactly the same constitution as are the gall-flowers.

IRIS IBERICA.—Mr. AMOS PERRY writes as follows from his Hardy Plant Farm, Enfield, Middlesex:—"I showed *Iris iberica* on April 30 at the meeting of the Royal Horticultural Society, and there appears to have been a good deal of doubt about plants flowering in the open air. I have a bed of these in flower now in the open. Many of the *Oncocylus Iris* grow and do much better when planted in a spot congenial to their requirements, that is hot, dry soil and very stony. *Iris Susiana* I never saw looking better, every root, I think, is going to flower well, and almost every plant of *Iris iberica* will be in flower during the next fortnight or three weeks."

AGRICULTURAL EDUCATION.—The departmental committee, of which Lord REAY is chairman, held meetings on April 30, and May 1 and 2. Representatives of the agricultural department, Cambridge University; Armstrong College, Newcastle-on-Tyne; South Eastern Agricultural College, Wye; Essex County Technical Laboratory (Chelmsford), and the Agricultural College, Holmes Chapel, Cheshire, attended and gave evidence.

BIRMINGHAM PUBLIC PARKS.—The display of bulbous flowers in the Birmingham parks is this season more beautiful than ever. Beds at Cannon Hill Park, now glowing with brilliant colour, each contain no fewer than 3,000 bulbs, whilst here and in the other parks of Birmingham there are scores of flower-beds and borders holding 1,000 bulbs each. At Warley, and also at Lightwoods, a pretty effect has been secured by planting a large number of Daffodils in the grass, and in this connection it may be noted that the efforts of the Baths and Parks Committee to beautify the parks have been greatly aided by the generous gift of 50,000 Narcissi from Mr. R. SYDENHAM. At Cannon Hill Park a great improvement has been effected in the extended rockery by the side of the first pool. Mr. W. H. MORTER, the present superintendent of the City Parks, has greatly developed bulb-cultivation in most of them, and the displays in spring are much appreciated by the public.

INFLUENCE OF THE SCION UPON THE STOCK.—In a recent contribution to the *Journal de la Société Nationale d'Horticulture de France*, M. G. RIVIERE records the results of some experiments made by him in grafting Apples. On a previous occasion, M. RIVIERE had shown that the weight or quantity of sugar in the fruit of the Apple Calville Blanc varied according as it was grafted upon the Paradise stock or on the Doucin Apple. In his later paper he gives the results obtained by grafting Doyenné d'Alençon Pear on the Quince stock and on the Doucin Apple. The new experiments confirm the former ones, showing that the fruits borne by the graft are always plainly influenced by the stock, and, undoubtedly, with special reference to the Pear, that the Quince, among the stocks hitherto studied, exercises the most valuable influence, not only as regards increasing the size of the fruits of our garden varieties, but especially and particularly it furthers the formation of sugar in the pulp. It should be added that Doyenné d'Alençon grafted on the Quince is represented at Versailles by a handsome pyramidal tree, nine years old, while Doyenné d'Alençon, grafted on the Doucin Apple, the vegetation of which is always poor, forms but a poor tree with very short lateral branches. It flowered first in 1906 at the age of 13 years and, always a weak plant, yielded but three Pears. This, clearly, is useless as a stock in a nursery; but it seems desirable to notify this unprecedented (?) instance of longevity in a Pear grafted on an Apple.

THE GENUS EUCALYPTUS.—Mr. J. H. MAIDEN has lately published part VIII. of his handsome *Critical Revision of the Genus Eucalyptus*. This includes the descriptions and illustrations of four species: *Eucalyptus capitellata*, *E. Muelleriana*, *E. macrorrhyncha*, and *E. eugenioides*.

VEGETABLE TERATOLOGY.—Mr. W. C. WORSDELL, of the Jodrell Laboratory, Royal Gardens, Kew, who is preparing a work on the subject of vegetable teratology, would be greatly obliged to any correspondent who could favour him with specimens, drawings, or notes of abnormalities of any kind in the vegetable kingdom.

HYACINTH PRIZES IN 1908 AT ROYAL HORTICULTURAL SOCIETY'S MEETING.—The Royal Dutch Bulb Growers' Society at Haarlem have offered to present, and the Royal Hor-

PHOTOGRAPHIC APPARATUS.—Herr JOHANN RIEDL, Goerlitz, Schlesien, forwards a catalogue of the cameras and photographic accessories which are a speciality of his firm. His descriptions and lists are useful because published in four languages, German, English, French and Italian, in parallel columns.

ETHERISATION OF STRAWBERRIES.—The subject of the treatment of Strawberries by etherisation is mentioned by M. COUDRY in the *Journal de la Société Nationale d'Horticulture de France*. The writer records that: "M. BULTEL, Head Gardener at the Chateau d'Armainvilliers, Gretz (Seine et Marne), in January, 1906, staged three lots of the Strawberry Vicomtesse Hericart de Thury, raised under different treatments, and showing that Strawberries previously subjected to etherisation not only flowered and fruited

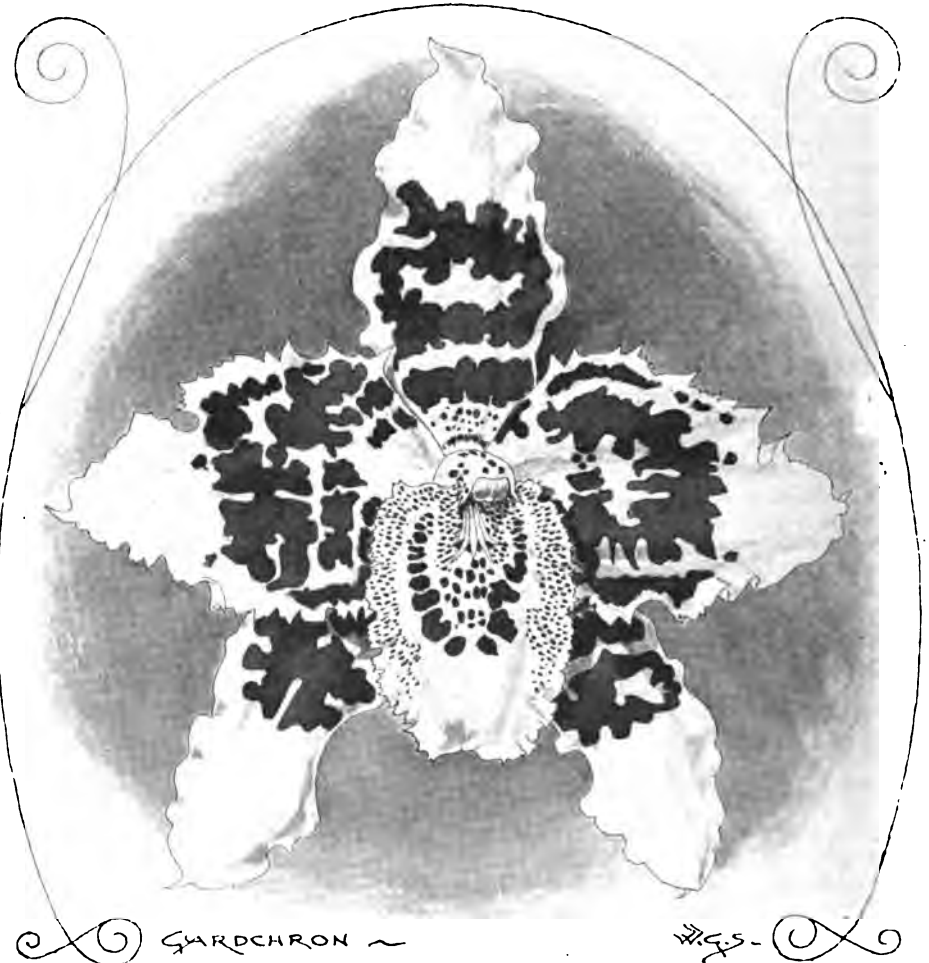


FIG. 124.—ODONTOGLOSSUM PRINCE EDWARD OF WALES: FLOWER WHITE WITH PURPLE MARKINGS. (See p. 303.)

ticultural Society has accepted, the undermentioned prizes for forced Hyacinths to be competed for at the Royal Horticultural Society's Show at Vincent Square on Tuesday, March 31, 1908. Each bulb must be in a separate pot (size optional), and all must have been forced entirely in Great Britain or Ireland. No exhibit may contain more than two specimens of any one variety; and no exhibitor may exhibit in more than one class. *Division I.—For amateurs and gentlemen's gardeners.*—Class 3.—18 Hyacinths, 1st prize, £8 8s.; 2nd, £4 4s. Class 4.—12 Hyacinths, 1st prize, £6 6s.; 2nd, £3 3s. Class 5.—6 Hyacinths, 1st prize, £4 4s.; 2nd, £2 2s. *Division II.—For nurserymen.*—Class 6.—24 Hyacinths, 1st prize, £8 8s.; 2nd, £4 4s. Class 7.—18 Hyacinths, 1st prize, £6 6s.; 2nd, £3 3s. Class 8.—12 Hyacinths, 1st prize, £4 4s.; 2nd, £2 2s. W. Wilks, Secretary.

earlier, but also bore a larger yield of fruit than others." The excellent results obtained everywhere by etherisation encourage many persons to apply the treatment, which is becoming general, and is likely to prove of great value, provided that the ether is not used for plants beginning their season of growth. M. BULTEL raises an interesting question by enquiring if plants etherised that they may produce earlier fruit give as satisfactory results as those obtained when earlier flowering is desired, as with Lilacs and other subjects. M. BULTEL answers in the affirmative. He bases his opinion on experiments he has made with Strawberries and Cherries, and which he proposes to continue with other plants. Another experiment made by M. BULTEL on the Strawberry Royal Sovereign proved that its early maturity and increased yield were wholly due to etherisation.

DESTRUCTION OF SLUGS AND SNAILS.—A paragraph in the April number of the *Journal of the Board of Agriculture* mentions several ways in which slugs and snails may be destroyed. A quotation from a Mexican agricultural circular recommends the obvious but tedious remedy of hand-picking, and also says that: "Pieces of board smeared with fat on the underside are laid down in infested places, with room beneath for the snails to collect. Cabbage leaves with rancid butter on one side, Melon rinds, and the leaves of the common *Acacia* are useful in attracting snails. A useful trap for slugs may be made of an earthen flower-pot provided with a cover and having a row of holes round the middle. These pots are sunk in

and stretched round the border. Bands of cloth soaked in this solution and fastened round the tree stems prevent the ascent of slugs and snails, while a solution of iron sulphate 25 per cent. to 50 per cent. applied in a ring 4 inches wide round the trunk of the tree is also said to stop their passage. The pests may be killed in weeds, hedges, &c., by spraying with a 1 per cent. solution of copper sulphate, or a 1 per cent. solution of common salt."

VEGETABLE RESOURCES OF THE TRANSVAAL.—Mr. J. BURTT DAVY, F.L.S., Government Botanist in the Transvaal, is expected to deliver a lecture on the Vegetable Resources of that colony before the Scientific Committee of the R.H.S. at Vincent Square, Westminster, on Tuesday next, at 4 p.m.

Porter and R. C. Gaut.—*The Animals' Friend*. April. —*Proceedings of the Western New York Horticultural Society*. January, 1907. This is a vigorous society, and the editor of the proceedings, Mr. John Hall, forwards an encouraging account of its work. This has now been carried on for 52 years, and deals with every branch of horticulture.—*Journal de la Société d'horticulture du Japon*. March. An illustrated journal, printed in Japanese, and issued at Tokio.—From the New Zealand Department of Agriculture. *Agriculture in New Zealand*, Hon. Robert McNab, Minister for Agriculture; and *Report of the Divisions of Biology and Horticulture and Publications*, T. W. Kirk. Includes papers on the fungoid and insect pests investigated during the year, and on fruit imports, exports, cultivation, &c.—*The Sydney Mail*. This well-known publication speaks of criminal waste of timber owing to the construction of a railway through the Dorrigo country, wholesale and needless destruction having, it is said, been wrought. This is to be regretted in any district, and it is hoped that the aid of the Department of Forestry will be involved.—*Interim Report of the Experimental Farms, Ottawa*. December to March 31, 1906. Records useful work in all departments, and a brief review of the condition of agriculture in Canada at the time when the farms were established, and of what has since been accomplished.—From the Imperial Department of Agriculture for the West Indies. *A.B.C. of Cotton Planting*, compiled by the Staff.—*Seedling and other Canes and Manurial Experiments at Barbados, 1904-6*.—*Agricultural Bulletin of the Straits and Federated Malay States*. Edited by H. N. Ridley and J. B. Carruthers. This periodical is principally devoted to papers on Rubber cultivation in various localities.—*Workmen's Compensation Act*. Handy notes for employers. By A. Walbrook.—*The Cinematograph in Science*, by C. Urban.—*Experiments in Crossing Potatoes*. J. H. Wilson. Reprinted from Transactions of the Highland and Agricultural Society of Scotland.—From the University College, Reading. Agricultural Department, Bulletin II. Contents: Sugar-Beet Experiments in Bucks, Trials of Potatoes.—*Report on the Destruction of Charlock in Corn Crops*. Mr. G. F. Strawson. A useful leaflet, procurable from Messrs. Spottiswoode & Co., New Street Square. E.C.

TWO NEW ORCHIDS.

ODONTOGLOSSUM × PRINCE EDWARD OF WALES.

Our illustration (fig. 124) represents a flower of the beautiful *Odontoglossum* obtained by Messrs. Sander & Sons, St. Albans, from a cross between *O. Rolfeæ* (*Pescatorei* × *Harryanum*) and *O. crispum* (*Harryanum* × *Harryanum*), and for which a First-Class Certificate was awarded at the Royal Horticultural Society on April 30 last. It is a very fine production, showing in a remarkable degree the advantages of inter-crossing good hybrids, for in the present variety it is easy to trace the features of all the species used in its production. The plant is a strong grower, and the flowers are white, beautifully marked with purple with a violet shade on some of the markings.

BRASSO-LÆLIO-CATTLEYA FOWLERI. (CATTLEYA SCHRODERÆ AURANTIACA × BRASSO-LÆLIA MRS. M. GRATRIX.)

"A PRETTY flower, and quite a new departure in colour" was the general opinion of the Orchid Committee of the Royal Horticultural Society on April 30, when it awarded a First-Class Certificate to this charming hybrid shown by J. Gurney Fowler, Esq., Glebelands, South Woodford (gr. Mr. J. Davis). *Brasso-Lælia* Mrs. M. Gratrix is derived from *Lælia cinnabarina* and *Brassavola Digbyana*, and through it the underlying of the yellow tint in *B.-L.-C. Fowleri* and the crimping and slight fringing of the lip may be traced, the influence of *Cattleya Schroderæ* giving form and substance. The blending of the colours and their soft tone are indescribably beautiful. The ground colour is yellow, but the whole surface is tinged and delicately veined with salmon-rose. The large disc of the lip is buttercup-yellow, with a broad margin of salmon-rose.



FIG. 125.—BRASSO-LÆLIO-CATTLEYA FOWLERI: COLOUR OF FLOWER, YELLOW TINGED AND VEINED WITH SALMON-ROSE.

the ground so that the holes come about at the surface. The inside of the pot is smeared with beer, a small amount of which is put into a dish at the bottom. Another useful trap is a cone of galvanised iron bored with many holes, sunk in the ground and baited with pieces of Potato, Carrot, or Apple. When snails and slugs have been trapped they may be killed by being left for five hours in a 5 per cent. solution of copper sulphate in water, or a 2 per cent. solution of lime in water. The pests may be kept away from a garden by a rope of grass or fibre soaked in a 10 per cent. solution of copper sulphate

Publications Received.—Liverpool University. Institute of Commercial Research in the Tropics.—*Maize, Cocoa, and Rubber*, hints on their production in West Africa. Viscount Mountmorres.—*Allotments*, by T. W. Sanders. One of the useful series of penny handbooks issued by the Agricultural and Horticultural Association, 92, Long Acre.—*The Garden City*, April.—*A Concise Handbook of Garden Annual and Biennial Plants*, by C. M. A. Peake. Methuen & Co. 3s. 6d. net.—*Bulletin of Miscellaneous Information*, Royal Gardens, Kew. No. 4, 1907. Contents: Gutta Percha Trees of the Malay Peninsula; Fungi exotici, VI., Revision of *Dubouzetia*, &c.—Lancaster County Council, Agricultural Department. *Report of Experiments upon the Potato Crop, 1905-6*. By Edward

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

TULIPS IN THE VICTORIA PARK, SWANSEA.—During a recent visit to Swansea, I was invited to inspect the Tulips in the Victoria Park of that town. There are some 45 flower-beds, most of which are cut out in the turf, and they are now filled with these beautiful bulbous flowers. The large centre bed contains some 900 bulbs, the variety being Thomas Moore, a very distinct variety of an orange-scarlet shade. Mr. Bliss, the superintendent, informs me that this variety is much admired by visitors. Joost Van Vondel was also very fine, in its large pure-white flowers. Four beds were devoted to Proserpine, a rich, dark rose-coloured variety, having splendid and large flowers. The old favourite, Cottage Maid, formed some of the most effective beds in the group. The colouring is rose-pink shaded with white. Ophir d'Or, a pure golden-yellow flower, large and fine of shape, is the best yellow Tulip known to me for bedding purposes. It is very sturdy of habit. Another variety of merit I noticed was Dusart, with flowers a dark crimson. Four beds were planted with the rosy-pink Van Berchem, and other varieties noticed were Artus, Canary Bird, Empress of India, Grace Darling, and Montessoro. I was impressed greatly with the evenness of the whole, and the good blending of the colours. Since Mr. Bliss was appointed, a little more than four years ago, as parks superintendent, he has made much improvement, and his work is fully appreciated. *R. Milner, Margam Gardens.*

A GREEN PRIMROSE.—I send specimens of a green-flowered Primrose recently discovered by Lady Griseld Hamilton in the Wilderness at Tynningham. On examination it was found that what appeared to be a small clump was really three plants, apparently two or three years from seeds. Green Primroses were common two to three hundred years ago, and probably much earlier, for Spenser mentions the flower as associated with Violets and other flowers in a chapel, and all the early herbalists describe it, as well as green Cowslips, both single and double. Parkinson gives the best description, but unfortunately he does not figure it. It was "very near the same yellowish green colour that the husk is of," which agrees with the flower in question. *R. P. Brotherston.*

FRUITS OF ROYAL SOVEREIGN STRAWBERRY AT THE HORTICULTURAL HALL.—Many visitors to the last meeting of the R.H.S. would doubtless ask themselves if there is merit in producing Strawberries of such enormous size. The variety has nothing to recommend it on the score of flavour, and the size and weight of the fruits shown—2 oz. each—seemed scarcely desirable points in a Strawberry. I opine we have several varieties (omitting British Queen) of fine flavour, good bearing qualities, and handsome in shape, that greatly excel Royal Sovereign in every quality but size. Varieties comparatively modern are Doctor Hogg, Latest of All, Vicomtesse Hericart de Thury, President, La Grosse Sucrée, and of old ones, Auguste Nicaise, Carolina Superba, Duke of Edinburgh, Filbert Pine, James Veitch, and Lucas. It amounts almost to a heresy to mention nowadays the varieties Keen's Seedling, Loxford Hall, Early Prolific, "Paxtons," or "Napiers." *F. M.*

WEATHER IN DEVONSHIRE.—April has been an exceptionally wet month, and we have registered 5.22 inches of rain. The rainfall in the previous three months was 1.19, 1.39, and .66 respectively. Several heavy showers of hail fell on the last day of April. Trees generally give signs of a good fruit year in this neighbourhood. *Fred Leach, The Avenue Gardens, Brampton Speke, Exeter.*

EUPHORBIA (POINSETTIA) PULCHERRIMA.—I have succeeded in obtaining fertile seeds from this species, and have now raised plants from these seeds. Is this an unusual occurrence? I may say the plants were grown in cool frames, and they flowered in an ordinary plant stove. As the seed was ripening, small bracts developed at the base of the seed pods, and the plants retained most of their foliage. *E. Robinson, Swinfen Hall Gardens, Lichfield.*

TO PRUNE OR NOT TO PRUNE.—I was surprised at Mr. Udale's report on page 249, for when I called and saw his trees a few years ago I left under the impression that he was all but an out-and-out non-pruner, which impression was confirmed more or less by his little book which he sent me later, but which I have not at hand at present. I do not consider his experiments either scientific or conclusive, and certainly not exact or complete enough to set against the Woburn tests. Such expressions as "carefully," "badly," or "roughly" pruned, &c., convey no meaning, and his hypothesis that, under equal conditions, the fruit of pruned trees must be larger and of better quality, as I apprehend him, is one that I would be surprised to see any authority on vegetable physiology of repute put his name to. I thought it was held by every experienced fruit-grower that the size and quality of an Apple, for example, depended upon the number of Apples the tree or branch was allowed to carry, proper nourishment at the root, and the proportion of healthy foliage maintained, and I entirely fail to see why all these conditions cannot be secured on an unpruned tree as well as on a pruned one. I never had any difficulty whatever in the matter from the Gooseberry up to the Vine or Peach. I was in Mr. Udale's locality the week after his article appeared, and I saw many gardens and orchards, both new and old, grass orchards and fallow ones, and I was struck by the fact that I did not come across one example of Mr. Udale's practice either in Plums or Apples. If you want size and quality on an unpruned tree it is a matter of thinning. The principle involved is the same. All the other conditions being equal, will Mr. Udale explain how the pruned tree alters the size and quality of the fruit? If he has got the facts, he ought to be able to provide a theory to fit. *J. Simpson, Studfield.*

—Arising out of the experiments conducted at Woburn, the results of which were recently published by the Duke of Bedford and Mr. Spencer Pickering in the Bedford Experimental Fruit Farm's Report, a discussion on the subject of pruning or non-pruning of fruit trees, though naturally one-sided, took place at the meeting of the Fruit Committee of the Royal Horticultural Society on April 30, at which some 25 to 30 members were present. The chairman, Mr. G. Bunyard, practically voiced the views of the members when he ridiculed the assumption that fruit-tree pruning was wrong practice. No member supported the Bedford theories. Such discussions may well employ so important a body of experts as that of the Fruit Committee, especially when they find little before them in the way of exhibits. *Member.*

DETERIORATION IN STRAWBERRIES.—I quite agree with the remarks on p. 268 upon the necessity for early planting, and this applies equally to Strawberries in gardens as in fields. I have had no experience in the field culture of Strawberries, but the failures to which your correspondent refers are likewise apparent in many gardens. Careful selection of runners and early planting is of little avail unless careful attention is given to the plants from the runner stage to the time of their fruiting. A system of culture by which I have obtained 1½ lb. of fine fruit per square yard is as follows:—Plants for furnishing runners are planted in rows about the end of September in ground that has not carried a similar crop for three or four years past. The flowers are pinched out directly they appear, and any plants not showing flowers are discarded. Layering is commenced in 4-inch pots as soon as the runners develop, and about four are allowed to each plant. When the young stools are large enough, they are severed from the parent and stood on the shady side of a wall or glasshouse. The ground intended for their permanent planting should be well trenched the previous autumn or early spring, and be planted with early Peas or with early Potatoes—preferably the former. When trenching, plenty of potting shed refuse and good rotten manure should be incorporated with the soil, and a dressing of freshly-slaked lime applied at the finish. The early crop of Peas should be harvested by the end of July, when a dressing of rotten manure, loam and lime should be dug in one spit deep. Plant the Strawberries about the middle of August in lines 2 feet apart, allowing 20 inches between

the plants in the rows, keeping the crowns rather low in planting. If the weather is very dry at the time of planting, give copious waterings until the plants are actively rooting. The Dutch hoe should be worked in the rows at least once every week. About the end of October a layer of manure should be placed about the plants and allowed to remain through the winter, and raked off again about the middle of March following, when a good sprinkling of lime should be lightly forked in the ground. The Dutch hoe should be kept going between the plants, and all runners must be pinched off until nets are put on later. About the time when the plants are in full bloom, a good soak of liquid manure should be given. After the plants have finished flowering, a layer of bracken-Fern should be placed about them, care being taken to work it well around each plant. If any slugs remain after the lime and hoeing, the rough Fern will deter them so that very few slug-eaten fruits will be found. For supporting the netting, stout stakes or posts 4 feet in length are driven into the ground at 6 yards apart, and from these galvanised wire is stretched to carry the nets. This allows about 3 feet 6 inches head room, and enables the fruits to be gathered without removing the nets. If, after the first gathering (about June 17), the weather is very dry, the hose should be freely applied, for at this stage much water is needed, and with the use of bracken for litter no fear from mildew need be entertained. The plants should only be cropped for two years: the second year they are about two weeks later in fruiting, but, by making a new bed each year, early and later crops are obtained. The varieties grown here are: Royal Sovereign, Laxton's Leader, Fillbasket, and Sir Joseph Paxton. An exchange of runners with some grower at a distance every three or four years is very desirable. *George Ferrington, Penbedw Garden, Nannarck, North Wales.*

LEAD ARSENATE AS A SPRAY.—Referring to Mr. Spencer Pickering's note (p. 271) on arsenate of lead as a destroyer of leaf-eating insects, your readers may not all be aware that there is always a considerable risk to foliage in using a home-made mixture of sodium arsenate and acetate of lead unless it is very carefully prepared. There is always the possibility of free sodium arsenate remaining unabsorbed by the acetate, and sodium arsenate will destroy almost any herbaceous growth; it is indeed a very effective weed killer. All risk of that kind is avoided by using a preparation, such as Swift's arsenate of lead (referred to on p. 271), which is so prepared as to contain an excess of acetate (which is quite harmless), and, in addition, a substance which makes it adhere to the leaves. I have excellent reports of experiments made last year in Ireland with Swift's arsenate, and it is now being generally asked for here. *D. M. Watson, Ph. Chemist.*

CARBONIC ACID GAS.—In reference to the very interesting article on carbonic acid gas by Mr. C. T. Drury, on p. 277 of the issue of May 4, it may be mentioned that at the Rothamsted Laboratory we have a bottle holding about 200 ounces of soil taken from the top 9 inches of one of the experimental fields in October, 1874. During the sampling a waft of wind must have conveyed a spore of an Asplenium Fern to the soil, because there were no Ferns growing in this field, but there were Ferns in a private garden some distance away. A short time after the soil had been placed in the bottle and tightly corked it was observed that a Fern had made its appearance; the cork was then hermetically sealed with a thick coating of wax. From that time to the present, a period of 33 years, the Fern has continued to grow, and quite fills up the bottle. The roots have permeated through the whole soil. The Fern partially dies down occasionally, and then springs up again with great vigour. We must repeat the question of Mr. Drury—"How is it done?" Experiments in vegetation show that plant growth and the metastasis in the tissues necessarily connected with it only take place so long as oxygen can penetrate from without into the plant. In an atmosphere devoid of oxygen no growth can take place, and if the plant remains for any length of time in such an atmosphere it perishes. The formation and exhalation of carbonic acid gas, that is to say, the carbon resulting from the decomposition of the organic

SOCIETIES.

ROYAL HORTICULTURAL

Scientific Committee.

APRIL 30TH.—Present: Dr. M. T. Masters, F.R.S. (in the chair), Messrs. G. Massee, E. M. Holmes, W. C. Worsdell, G. Gordon, A. Worsley, E. A. Bowles, J. T. Bennett-Poë, A. W. Sutton, G. S. Saunders, J. Douglas, R. A. Rolfe, Ed. Mawley, and F. J. Chittenden (hon. sec.).

African Crinums.—Mr. WORSLEY reported that the Crinums shown at the last meeting by Mr. ELWES were *C. giganteum* and *C. Macowani*. Some years since Messrs. BULL sent out a pink variety of the former as *C. nobile*, so that *C. nobile* var. *album* would, under this nomenclature, represent the type. The finest varieties of this species have widely-expanded flowers (such as var. *Rattrayi*, &c.). They are all fragrant, and some of them (as in the case of the form now shown by Mr. ELWES) are very fragrant. On this account the name "*vanilodorum*" was given to a form of this species. *C. Macowani* has been the subject of much confusion. The plant figured under this name in *Bot. Mag.*, tab. 6381, is *C. Moorei*, *C. Macowani* is the southernmost representative of a widely-distributed species that spreads northwards at least as far as the equator, and passes by indiscernible gradations into forms of *C. latifolium*. The form shown by Mr. ELWES is practically sessile, and in this respect is not identical with the forms originally described by Mr. BAKER under *C. Macowani* (*Handbook of Amaryllideæ*, p. 94).

Fungus on Retinospora.—Mr. SAUNDERS showed a specimen of *Retinospora* (immature form of *Juniperus chinensis*) attacked by the fungus *Gymnosporangium* sp., which forms jelly-like masses on the shoots.

Auricula with petaloid stamens.—Mr. J. DOUGLAS showed an Auricula in which the stamens of most of the flowers had become petaloid; in some they were well developed, in others quite minute.

Ceropegia Woodii.—Mr. WORSLEY showed seeds of this plant, which, like so many of the family to which it belongs, is provided with a parachute arrangement for the distribution of the seed. Mr. WORSLEY said that the hairs appeared to be sticky. He also showed a shoot which had been hanging down quite freely, bearing little tuberous growths upon it. The formation of these small tubers had been attributed to contact of trailing shoots with damp earth, but that could not have been the exciting cause in this case. He thought that possibly irritation by insects might have excited their formation. Not all shoots bear these tubers when hanging freely down.

Genetics.—Mr. WORSLEY thought that the committee should by some means or other be kept informed of the progress made in the investigation in progress into the laws of inheritance, and it was left to the secretary to ascertain from members what could be done in this direction.

Colouration of Hawthorn leaves.—Mr. HOLMES showed leaves of Hawthorn bearing crimson patches, and remarked that these coloured spots followed as the result of injury by insects, in the case in point apparently by aphides. These colours so produced are not, it has recently been shown, due to anthocyanin, but to bodies allied to the phenols. Mr. HOLMES stated that "M. ARMAND GAUTIER has shown (*Comptes Rendus*, CXIV., p. 624) that an injury done to the petiole of a vine leaf causes the formation in the leaf, of a red colouring matter, similar to that produced in autumn, and he now states (*Comptes Rendus*, CXLIII., p. 490) that the colouring matter produced by injury or not, as previously supposed concerning anthocyanin or erythrophyll, a uniform colouring matter derived from chlorophyll, from which it differs in containing neither nitrogen nor phosphorus, but belongs to the coloured phenol acids, is crystallisable, and of the nature of tannin. These pigments vary with each kind of plant, and those of fruits are not identical with those of leaves, although related to them. According to M. MIRANDE, the lesions produced by various fungi on leaves, e.g., *Ramularia*, *Cercospora*, *Septoria*, *Ovularia*, *Coryneum*, and *Gloeosporium* have the same effect in producing the red

colouring matter." The exciting cause in the case of the Hawthorn leaves shown appears to have been the attack of aphides.

Geaster fornicatus.—Mr. MAWLEY showed an excellent specimen of this curious fungus found growing by the roadside at Berkhamsted.

Contortion in Carnation.—Dr. MASTERS showed a specimen of Carnation having a curiously-contorted stem, similar in appearance to the fasciated and contorted stems often seen in the Teasel. It was referred to Mr. Worsdell, who will report upon it at the next meeting.

Pelargonium sport.—Dr. MASTERS also showed specimens of flowers taken from a show Pelargonium which normally produced irregular single flowers, with purple blotches upon the upper petals. A lateral branch from this sported, so that it bore regular flowers and had the stamens replaced by petals. This sport was reproduced by cuttings.

NATIONAL AURICULA AND PRIMULA (MIDLAND SECTION).

MAY 1.—The eighth annual exhibition in connection with the above society was held at the Botanical Gardens, Edgbaston, Birmingham, on this date, and was the most successful show ever held by the society. The quality of the exhibits was excellent, the weather fine, and the attendance large. Northern growers were represented by Mr. TOM LORD, of Todmorden, and Mr. W. M. SHIPMAN, of Altrincham. The grey-edged Auricula Richard Headley was shown in splendid condition, and Mr. TOM LORD won the premier prize for the best show Auricula in the exhibition with a superb plant of this variety. Mr. LORD also secured the principal honours in the classes for show Auriculas, but he was not so successful in the classes for Alpines, the Birmingham growers being particularly strong with these. The premier Alpine Auricula was a beautiful flower with a golden centre named Mrs. Danks. It was raised by Mr. Richard Holding, several years ago, and was shown on this occasion by Mr. CHARLES WINN. There were several notable honorary exhibits, including a fine group of Polyanthes and Primroses shown by Messrs. STORRIE & STORRIE, of Dundee (Silver Medal); a similar exhibit of Polyanthes and Primroses displayed by Mr. S. MORTIMER, Farnham, Surrey (Silver Medal); a showy exhibit of Zonal Pelargoniums from Messrs. BAKER'S, Wolverhampton (Silver Medal); and an interesting collection of Cacti and succulent plants shown by Mr. W. C. G. LUDFORD, Four Oaks, Sutton Coldfield (Silver Medal).

The show was opened by Mrs. George Cadbury, who gave an address on the Auricula and its suitability for culture, especially in towns, by working men. The Botanical Gardens were in their full spring beauty, and added much to the enjoyment of the numerous visitors.

SHOW AURICULAS.

The principal class was that for eight dissimilar varieties, and, as stated, Mr. LORD secured the leading position with a fine display, his examples being Ruby, Richard Headley, Mrs. Dodwell, Shirley Hibberd, Acme, George Lightbody, Abram Barker, and Mrs. Potts. 2nd, W. M. SHIPMAN, Altrincham, with Gerald, Abram Barker, Richard Headley, Shirley Hibberd, Mrs. Potts, Miss Ethel Dinham, and Acme. 3rd, W. C. G. LUDFORD, Four Oaks, Sutton Coldfield.

Six show Auriculas, dissimilar.—The premier collection was staged by Mr. LORD, and the same award was gained by Mr. W. SHIPMAN as in the preceding class, but Mr. CHAS. WINN, Selly Park, reversed positions with Mr. LUDFORD in the 3rd and 4th places. Mr. LORD showed Richard Headley, George Lightbody, Mrs. Henwood, Mrs. Potts, Abram Barker, and Acme. Mr. SHIPMAN had Acme, George Lightbody, Shirley Hibberd, Richard Headley, Abram Barker, and Gerald.

Four show Auriculas, dissimilar.—Mr. S. T. HEALEY, Leicester, was awarded the 1st prize for good examples of James Hannaford, Richard Headley, Gladiator, and Favourite. 2nd, Mr. J. COLLIER, Junr., Ludlow, with Heatherbell, Beauty, Abram Barker, and Mrs. Potts.

compounds in the soil contained in the bottle, may always be observed in the warmer weather by the production of water on the inner surface of the bottle, at the expense of the organic substance of the soil, in consequence of the process of respiration. The whole life of the plant consists in complicated movements of the molecules and atoms, and the forces necessary for these movements are set free by respiration. The oxygen, while decomposing parts of the assimilated substance, sets up important chemical changes in the remaining portion, which, on their part, give rise to diffusion-currents, and these bring into contact substances which again act chemically on one another. There is thus sufficient oxygen and moisture in this bottle of soil to produce the whole cycle of plant-life for a continuous succession of 33 years, and there appears no reason why this condition of things should not go on for another similar period. *J. J. Willis, Harpenden.*

YOUNG GARDENERS' LITERARY EFFORTS.

On several occasions I have been invited to act as reader and adjudicator of essays written by young gardeners in competition for prizes offered by mutual improvement societies, and as a result I have to express regret that in so few cases do these essays merit praise as literary compositions. How far my experience may be that of others who undertake similar duties I cannot say, but that I have found such defects lead to the impression that young men too frequently enter the gardening profession somewhat indifferently equipped, educationally, and once in the profession do not seem to improve themselves when the need for doing so becomes apparent. Spelling is in many cases very weak, punctuation is specially so. Sentences are not individualised, but run one into the other without stops or commencing capitals. The general composition of the papers, too, is faulty, writers failing to express themselves clearly and lucidly. In many cases the omission of a needful word or two leads to the impression that the task of writing is rather an irksome one, and is therefore treated negligently. In connection with the responsible work in relation to the registration of efficient gardeners by the British Gardeners' Association, something useful might well be done in inviting each candidate for registration to write a short letter or essay on some gardening subject to test literary merit. Of course, a gardener may be a very capable one, but still be an indifferent hand at composition. At the same time it is obvious to all, old or young, that in making applications for situations, or writing ordinary business letters to employers, or to nurserymen, that any such communication if clearly, lucidly and excellently written, must convey a much better impression of the writer's capacity than would an indifferent effort. I should like to see an examination in literary composition by young gardeners below the position of foremen undertaken by gardeners' societies all over the kingdom. Some inducement might then be given to literary improvement. *A. D.*

A WELL-ARRANGED PINETUM.—Canterbury may, at no very distant date, be famous for its collection of Coniferous trees, for on the high ground above the town in a charming situation, and where the soil is most accommodating, Mr. Neville Cooper, of Vernon Heath, the son of the famous animal-painter, has devoted a large area of ground to the growth of his favourite trees. Originally the land was under coppice wood, but this has been cleared away, except a shelter band on the exposed sides, and planted with a very representative collection of Conifers, home and Continental nurseries having been ransacked for the rarest species and varieties. Naturally many of these were of small growth when obtained, and hardly fitted for permanent planting, so Mr. Cooper conceived the excellent idea of having a private nursery in Scotland, with the result that at Crieff one was established where the pure air and exposed situation render the majority of Conifers peculiarly suitable for their permanent situation in the garden of England. Of Abies alone there is an extensive collection of some ninety species and varieties; while the Cypresses exceed half a hundred, and of Cedars no fewer than sixteen kinds are under cultivation. Mr. Cooper is an enthusiastic cultivator, and one of the pleasantest days I have spent for a long time was amongst his Conifers at Canterbury. *A. D. Webster.*

Mr. HEALEY also won in the class for two show Auriculas, his examples being Henry Wilson and Mrs. Phillips. Mr. A. LAWTON, Aston, secured the 2nd prize in this class.

Two Show Auriculas.—This is a special class provided for cultivators who have not previously exhibited. The 1st prize was awarded to Mr. A. E. CLUTTERBUCK, Sutton Coldfield, his examples being Ruby and Mrs. Potts. 2nd, Mr. E. SAUNDERS, with Ruby and Miss Barnett. Mr. CLUTTERBUCK also won in the similar class for two Alpine Auriculas.

SINGLE PLANTS.

Green edge.—Mr. LORD secured both the 1st and the 2nd prizes in this class with Shirley Hibberd and Abram Barker respectively.

Grey edge.—Mr. LORD again won, having the best example in a plant of Richard Headley, and the 2nd best in another plant of this variety.

ALPINE AURICULAS

Eight Alpine Auriculas, dissimilar.—The 1st prize in this important class was gained by Mr. W. C. G. LUDFORD. He showed Argus, Mrs. M. Smith, J. F. Kew, Duke of York, Thetis, Firefly, Teviotdale, and George Cadbury. 2nd, Mr. C. WINN, with Miss Knox Taylor, Firefly, Teviotdale, Rosy Morn, Thetis, Gipsy Girl, Argus, and Duke of York.

Six Alpine Auriculas, dissimilar.—Mr. LUDFORD and Mr. WINN reversed positions in this class. The premier flowers were Mrs. Danks, Enteric, Thetis, Valiant, Argus, J. F. Kew. Mr. LUDFORD had Firefly, Rosy Morn, Thetis, Argus, &c.

Four Alpine Auriculas, dissimilar.—1st, Mr. RICHARD HOLDING, with Prudence, Mrs. Danks, Argus, and Duke of York. 2nd, Mr. A. WADLEY, with Argus, Duke of York, Thetis, and Mrs. Turner.

LINNEAN SOCIETY.

MAY 2.—At a general meeting held on the above date, the general secretary exhibited, on behalf of the owner, two portraits of John Fraser, F.L.S., by John Hoppner and Sir George Raeburn; the latter, he pointed out, was the unacknowledged source of the lithographed portrait in Hooker's *Companion to the Botanical Magazine*, Vol. II. (1836), p. 300. The following note accompanied the exhibit:—

"John Fraser (1750-1811) was born at Tomnacloch, Inverness-shire in 1750, and apparently came to London in 1770, when he married and settled as a hosier and draper at Paradise Row, Chelsea. Having acquired a taste for plants from visiting the Botanical Garden, Chelsea, then under the care of Forsyth, he sailed for Newfoundland in 1780 in search of new species, returning the same year. In 1784 he embarked for Charleston, whence he returned in 1785,

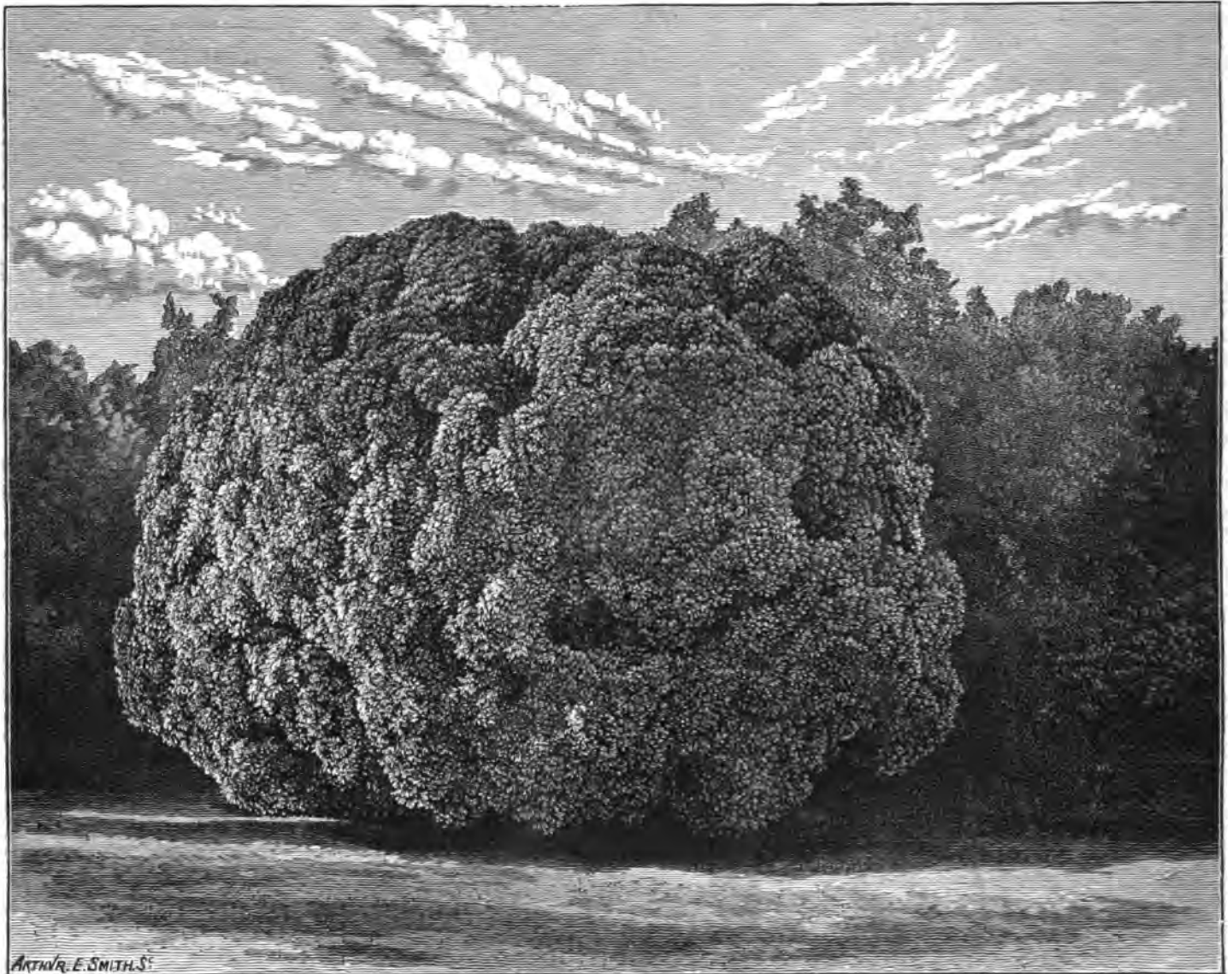


FIG. 126.—FAMOUS GLOBOSE YEW AT CHERKLEY COURT, THE LATE RESIDENCE OF MR. ABRAHAM DIXON, WHO DIED ON APRIL 30, AGED 92 YEARS.

White edge.—Acme, shown by Mr. LORD, was placed 1st; and the same variety, shown by Mr. PARTON was awarded the 2nd prize.

Selfs.—Mr. LORD was again to the fore, taking both the 1st and the 2nd prizes with Ruby and Mrs. Potts respectively.

Three Show Auriculas.—This class was open to local growers only, and resulted in Mr. W. C. G. LUDFORD winning with Abbé Liszt, Gerald, and Shirley Hibberd. 2nd, Mr. CHARLES WINN, with George Rudd, Mrs. Phillips, and Mrs. Sheppard. 3rd, Mr. RICHARD HOLDING.

The premier show Auricula in the exhibition was a very fine specimen of Richard Headley, shown by Mr. T. LORD.

The best single plant of an Alpine Auricula with a golden centre was Golden Acme, shown by Mr. RICHARD HOLDING. Mr. CHARLES WINN won the 2nd prize with the same variety; and the best with a light centre was Mr. W. H. PARTON's Thetis.

The premier Alpine Auricula in the show was the variety Mrs. Danks, shown by Mr. CHARLES WINN. The best six fancy Auriculas were shown by Mr. CHARLES WINN.

There were also a number of classes for seedlings, in which the principal exhibitors and winners were:—Messrs. Richard Holding, Charles Winn, E. Danks, J. Freeman, A. Wadley, J. Collier, junr., Joseph Stokes, E. Saunders, W. H. Parton, and W. C. G. Ludford.

only to start again the same year. His third, fourth, and fifth visits to North America were made in 1790, 1791, and 1795, he having in the latter year established a nursery at Sloane Square, Chelsea, to which his discoveries were consigned. Having introduced various American Pines, Oaks, Azaleas, Rhododendrons, and Magnolias, in 1796 he visited St. Petersburg, where the Empress Catherine purchased a collection of plants from him. Revisiting Russia in 1797 and 1798, he was appointed botanical collector to the Czar Paul, and commissioned by him, returned to America in 1799, taking with him the eldest of his two sons.

"In Cuba he met and was assisted by Humbolt and Bonpland. On his return the Czar

Obituary.

Alexander declined to recognise his appointment by his predecessor, though Fraser made two journeys to Russia to obtain remuneration.

"In 1806 he started on his seventh and last visit to America, again taking his son; he returned with many new plants, in 1810, to his nursery, which, however, was never successful.

"He died at Sloane Square on April 26, 1811. His herbarium was presented in 1849 to the Linnean Society, of which he was a Fellow, by his son; but was disposed of in 1863."

The next meeting of the society will be the anniversary meeting, on May 24, at 3 p.m., of which special notice will be given.

BRITISH GARDENERS' ASSOCIATION.

APRIL 30.—The last meeting of the executive council of this association was held at the Royal Horticultural Society's Hall, Westminster, on the above date. Mr. W. H. Divers in the chair. The report of the council for the past year was submitted and passed for the printer. It was decided that members only should be admitted to the annual meeting to be held in the Essex Hall, Essex Street, Strand, on May 29, at 7 p.m., but that all gardeners—whether members or not—would be welcomed to the conference to be held immediately after the meeting. Attention having been called to the low charges for jobbing gardeners in the neighbourhood of Blackheath, the secretary was instructed to write for fuller particulars, and at the same time to intimate to garden owners, by means of an advertisement, that it would be wise to employ only qualified gardeners, and preferably those who held the certificate of the association. *John Weathers, Hon. Sec.*

DEBATING SOCIETIES.

WARGRAVE AND DISTRICT GARDENERS'.—At a recent meeting of this association a competition amongst the younger members was held in the arranging of five vases of Narcissi for the decoration of a breakfast table, and afterwards a demonstration in wreath-making was given by Mr. E. Windsor, of Holme Park Gardens, Sonning. He explained the various details as his work proceeded, and showed the best manner of wiring flowers and fixing them to the groundwork. The flowers used in the competition, and many others, were sent next morning to the Reading Hospital.

Mr. T. W. Briscoe, Orchid grower to Messrs. James Veitch & Sons, Langley, read a paper on "Plants from China and Japan and their Collectors," before the members of the above association on May 1. In addition to fresh specimens of many of these Chinese Shrubs, &c., Mr. Briscoe exhibited herbaria specimens of others.

GUILDFORD AND DISTRICT GARDENERS'.—A meeting of the above association was held at the Workman's Hall, Guildford, on Tuesday, April 23, Mr. H. Tann presiding over a good attendance. Mr. W. Wells, Nurseryman, Merstham, Surrey, gave a paper on "Early Flowering Chrysanthemums." The lecturer gave a list of varieties which were best disbudded and another of those which did not require this treatment. By the aid of a lantern Mr. Wells showed a number of insects, some injurious and others beneficial to the Chrysanthemum. This meeting being held on what is known as Hospital Night, several of the members brought cut flowers which were afterwards sent to the Royal Surrey County Hospital. The third annual show of the association will, by permission of Lady Northcliffe, be held at Sutton Place, on Wednesday, July 17. *W. F. B.*

REDHILL, REIGATE, AND DISTRICT GARDENERS'.—At a largely attended meeting of the above society, held on Tuesday, April 16, Mr. W. P. Bound in the chair, Mr. Paisley, Worth Rectory Gardens, read a paper on "The Cultivation of the Primula." The lecturer said he preferred sowing the seed in September to the general practice of making spring sowings. To obtain large plants for exhibition purposes, it is necessary to give the plants a long season of growth, and as much as 16 months should elapse between the sowing of the seed and the exhibition of the plants. In seed-sowing it was necessary to nearly fill the pot or pans with rough leaves and place about one inch of finely-sifted soil on these and then sow the seeds. The lecturer strongly condemned the practice of placing the plants in cold frames, and advised the use of a low span-roofed house for their accommodation. A temperature ranging from 52° to 66° Fahr. was advocated, with frequent syringings on all favourable occasions. *F. C. L.*

At a largely attended meeting of this association, on April 21, Mr. Gregory delivered a lecture on "Rock and Water Gardening." The lecturer illustrated his remarks by a number of lantern slides, including views of the Rockery at Kew Gardens and the beautiful water garden at Gunnersbury House. *F. C. L.*

LEE, BLACKHEATH, LEWISHAM, & WEST KENT HORTICULTURAL.—At the monthly meeting of the above society, held at Church Street Schools, Lee, on Thursday, April 26, Mr. G. Dibley, F.G.S., gave a lecture on "The Non-Flowering Plants." The lecturer prefaced his remarks by exhibiting fossils showing Mosses and Ferns embedded. He also displayed lantern slides that illustrated many points of his lecture.

CROYDON & DISTRICT HORTICULTURAL.—The spring flower show, held under the auspices of the above society, was held at the Horniman Hall, Croydon, on Wednesday, May 1. The exhibition was open free to the public from three in the afternoon till ten at night, and was inspected by 6,000 to 7,000 visitors.

HANWELL AND GREENFORD HORTICULTURAL.—A meeting of this society was held on May 1, under the presidency of Mr. W. L. Williams, when Mr. J. Weathers delivered a lecture on the "Herbaceous Border."

DR. ROBERT HAMILTON RAMSAY.—We regret to announce the death on Saturday, May 4, of Dr. Robert Hamilton Ramsay, at his residence, Duncan House, Torquay, after a fortnight's illness. On Saturday evening, April 20, Dr. Ramsay was seized with paralysis of the left side as he was leaving the Torbay hospital. He presided the previous evening at the annual meeting of the local Gardeners' Association, of which he was re-elected president for the fourteenth year in succession. Dr. Ramsay was born in Edinburgh on December 13, 1824, and he was educated at Edinburgh Academy, and Edinburgh and Glasgow Universities. Passionately fond of horticulture, he formed at Duncan House one of the most attractive private gardens in the western counties, and made it one of the beauty spots of Torquay. We have often figured plants from Duncan House Gardens, and one of the most recent was the beautiful plant of *Cordylone Banksii*, which formed the supplementary illustration to our issue for February 23 last. Deceased was a Fellow of the Botanical Society of Edinburgh, and president of the Torquay Sick Gardeners' Relief Fund, which has been of much service to gardeners.

WILLIAM TEMPLE.—We have to record the death of this well-known gardener on May 1. Deceased, who was 72 years of age, was for 36 years head-gardener at Burley-on-the-Hill, Oakham, the residence of the Right Hon. G. H. Finch, M.P. Mr. Temple retired from active service early in the present year owing to indifferent health. He was a thorough all-round gardener,



THE LATE WILLIAM TEMPLE.

and his aid as a judge was often sought at the local exhibitions. Deceased is the last of an old family of Scotch gardeners. His father was gardener and steward to Captain Cheaps. Deceased served his apprenticeship at Balbirnie Gardens, and he also worked in the gardens at Whittinghame. He leaves a widow and three daughters. The funeral took place at Oakham on May 8.

GRAHAM McCULLOCH.—This gardener died at Chelmsford, Essex, on the 2nd inst. Many years ago deceased was a pupil of the late Mr. H. McIntosh, of Drumlanrig Gardens, Scotland, and later, when gardener to Viscount Powerscourt, at Powerscourt Castle, County Wicklow, the late Mr. McCulloch was a leading exhibitor at the Dublin show.

ABRAHAM DIXON.—The death of this gentleman occurred on Tuesday, April 30, at the advanced age of 92 years. Deceased was a well-known horticulturist, and our pages have contained numerous references to his famous gardens at Cherkley Court, Surrey. He was a great lover of plants of all kinds, but his especial favourites were tropical plants and exotic fruits. Mr. Dixon had a collection of aquatic plants, and a special house was constructed for their culture. It was here he cultivated the *Victoria regia*, and in our issue for January 3, 1895, p. 17, it was stated that a plant of this remarkable aquatic was then in flower, and it was described "as the finest in flower and foliage that had been produced in this country." Speaking of the water plants at Cherkley Court the same article stated "it may be said that it would be difficult to name a cultivated species which would not be found there in superb con-

dition." The Yews at Cherkley Court are amongst the noted trees in this country, and they are referred to in Mr. Lowe's *Yew Trees of Great Britain and Ireland*. The trees cover an area of from 90 to 95 acres, and are probably the finest collection of Yews in existence. One is of a remarkably rotund shape, and has been described as the Cauliflower-shaped Yew tree. See fig. 126.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending May 4, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather during this week was cold and unsettled. Falls of rain or hail occurred almost daily, but there were, nevertheless, frequent intervals of clear sky, especially over England. Thunder or thunder and lightning prevailed at Ventnor and Lowestoft on Monday and at Tunbridge Wells on Thursday.

The temperature was below the normal, the deficit varying as a rule between 3° and 4°. The highest of the maxima were registered either early or quite late in the week. In Scotland W. the thermometer touched 62°, and in the Midland Counties 60°, but in most other parts of the Kingdom it did not exceed 57° or 58°, and in Ireland N. it only touched 54°. The lowest of the minima were recorded on Sunday, and ranged from 28° in Scotland E. and England S.W. to 33° in England E. and to 39° in the Channel Islands.

The mean temperature of the sea.—On some parts of the south-west and west coasts the sea was more than a degree colder than during the preceding week, the decrease at Plymouth being 2.6°. On the north-east coast of Scotland, on the other hand, there was a moderate increase of warmth. The actual values ranged from 51° at Newquay to about 45° on the north and north-east coast of Scotland and to 43.6° at Burmouth.

The rainfall exceeded the mean in all districts, the excess being large generally, but small in England N.E. and Ireland S.

The bright sunshine did not differ very materially from the average over the kingdom generally. The percentage of the possible duration ranged from 46 in the Channel Islands and 45 in England S.W. to 81 in England N.W. and to 26 in Scotland N. and E.

THE WEATHER IN WEST HERTS.

Week ending May 8.

One very warm day, and one moderately cold night. On the whole a warm week. There occurred one very warm day when the temperature in the thermometer screen rose to 70°, or to the same temperature as on April 24. On the one cold night the exposed thermometer showed 8° of frost. Notwithstanding the recent moderately warm weather the ground, both at 1 and 2 feet deep, is now about 1° colder than is seasonable. Rain fell on four days to the total depth of half an inch. There has been some percolation through both the soil gauges during the week, but the amounts for the last few days have been very small. The sun shone on an average for 6½ hours a day, or for about an hour a day longer than is usual at this season. The winds remained high throughout the first four days, but since then have been light. On two days in the windiest hour the mean velocity was 20 miles, direction respectively W.S.W. and W. There was about a seasonable amount of moisture in the air at 8 p.m. A Blenheim Orange Apple tree growing in my garden first showed an open blossom on the 4th, which is two days earlier than its average date for the previous 21 years, and one day earlier than last year. *E. M., Berkhamsted, May 8, 1907.*

TRADE NOTICE.

APPOINTMENT.

Mr. G. HARROW, late of The Abbey Nurseries, Leicester, has been appointed Manager to Messrs. JAMES VEITCH & Sons, Ltd., Coombe Wood Nursery, Kingston-on-Thames.

ANSWERS TO CORRESPONDENTS.

* * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

ARUM WITH SPATHACEOUS LEAF: F. B. S. This abnormal condition is not uncommon.

CARNATIONS: E. B. We failed to find the worms, but suspect from your description, and the condition of the plants enclosed, that the soil is in a sour condition. Mix some lime with the loam which will neutralise the acidity. Sprinkle some soot also amongst it, for this will both furnish food and be a deterrent to the insect pests. The layers you forwarded had apparently failed to develop any roots.

CHRYSANTHEMUMS FOR PLANTING OUT: H. J. G., Preston. It would not be advisable to cut the Chrysanthemums back so close to the base as 1 inch in the present state. It would encourage suckers and these would prevent the main stems breaking into growth freely. They might have

been treated in the manner you suggest if they had been established in small pots. The plants having been in the cutting-boxes since December they need shifting, or they will become so impoverished as to be useless. If you cannot plant them out permanently at once, we should advise transplanting them into temporary beds, putting them at some 6 or 8 inches apart each way. Pinch them back to two or three joints as soon as they start into fresh growth. Remove them to the permanent quarters before they become too crowded, and stop them for the second and last time when they have become established. It does not follow that if the plants are checked severely in their early stages the blooming period will thereby be retarded, such treatment often has just the opposite effect.

EARWIGS: J. S. S. Try the old plan of the inverted flower pot filled with hay. Drive some stakes in the border at the foot of the wall, and on these place the inverted pots. These pests can also be trapped beneath pieces of slate.

EMIGRATION TO NEW ZEALAND: A. J. Your enquiry respecting the best means of securing a situation as a gardener in New Zealand arrived almost by the same post as a letter from a correspondent at present in Auckland, N.Z., upon the same subject. The following is the substance of his letter: "Will you permit me to warn gardeners, young and old, against coming to the colony. My experience is only based on eight months' residence, but it is enough, I hope, to stop further gardeners from coming. I have advertised 24 times in the two daily papers here, and yet cannot get even a full week's work jobbing. There are scarcely any permanent situations here. The gardener has to milk a cow, attend to a horse, and do other odd jobs. I hope to come home again as soon as I can get money equal to the cost of my passage both ways. The pay here in nearly all cases for garden work is 6s. per day; a gardener can very rarely get 7s., and he has to work for more hours than in England. Chinamen practically control the vegetable trade, and I know on good authority that leading Chinamen pay the £100 poll tax, so that they have to pay that money back in work. I am only writing of the conditions in Auckland, but have a friend in Wellington and he has had similar experience to myself. There are no garden papers published here, and at the time of writing I have had to go navvying. As far as I can gather navvies and farm hands are all that are wanted here. I have had 14 years' experience in good gardens at home (England), including Chiswick House, Dyham Park, and Brockley Hill, Stanmore. —G. HARDING, Ponsonby, Auckland, N.Z., March 12, 1907." In reply to your question respecting advertisements, if you inserted one in a paper published in England, it would be five or six weeks before the advertisement could be circulated in New Zealand.

FUCHSIAS FAILING TO GROW: J. W. The growing points appear to be injured by mites. Dip the plants in tobacco water.

GOOSEBERRY FRUITS: G. D. The blossoms were properly fertilised and the injury to the fruits has been caused by a check, probably frost.

INSECTS: A. A. W. The insect is *Andrena fulva*, one of the solitary burrowing bees which make their nests in the ground, frequently choosing gravel paths or short turf for the purpose. They form, according to the species, vertical tunnels from 5 to 10 inches in length, some with short horizontal ones leading from them. The bee places a pellet of pollen mixed with honey at the bottom of the tunnel on which she lays an egg, she then forms a partition across the burrow, procures another little mass of pollen and honey, lays another egg, makes another partition and continues the work until she has sufficiently filled the burrow with cells. The grubs, when hatched, feed on the food provided for them by their mother; when this is finished they undergo their transformation to the chrysalis state, in which condition they remain until the following spring, unless there are two broods which is the case with some species. We do not remember, however, having seen a second brood of *A. fulva*. If you wish to destroy these insects, probably the simplest way would be to thrust a strong wire or thin iron rod into the tunnel for the depth of a foot and then to pour in a strong solution of paraffin emulsion, or fill the hole with lime.

MELON: H. J. D. The roots have decayed owing to excess of water or fertilisers. There is no injury caused by fungi or insects. See also answer to B. E. H. in last week's issue, p. 292.

MELON LEAVES: W. P. The blistering is caused by the presence of too much moisture in the atmosphere. Better ventilation will remove the cause. There is no fungus present.

STRAWBERRY: W. H. D. It is uncommon for a second Strawberry to be produced in the axil of the first as in your specimen, but the production of a leaf or leaves from the fruits situate on the outside of the edible portion of the Strawberry is not so rare an occurrence. The edible portion of the Strawberry is the top of the flower stalk which dilates and becomes succulent. The "seeds," as gardeners sometimes call them, are fruits or seed vessels, and therefore carpels. Carpels are only modifications of leaves, and occasionally, as in this case, they may develop into leaves. The swollen receptacle being a portion of the stem it is not surprising that it should occasionally produce little buds and little growths as shown in the accompanying illustration. It may be added that in the small secondary Strawberry you have sent us there is



FIG. 123.—A PROLIFEROUS STRAWBERRY.

also medial proliferation, which means that the receptacle is prolonged into a leafy branch extending beyond the edible portion of the Strawberry.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **PLANTS:** A. P. *Cymbidium eburneo-Lowianum*, a cross between *C. eburneo* and *C. Lowianum*. —*Learner*. 1, *Tydzæa insignis*; 2, *Begonia nitida rosea*; 3, *Begonia hydrocotylifolia*; 4, Probably *Polygonum baldschuanicum*. Send when in flower. —*H. R.* Similar varieties of *Pyrus Cydonia japonica* have originated in nurseries and have received names. We cannot undertake to identify them. —*Cooper*. 1, *Amelanchier canadensis*; 2, *Taxodium sempervirens*. —*C. E. A.* *Megasea cordifolia*, often called *Saxifraga*. —*E. C. C. D.* *Saxifraga Cymbalaria*. —*T. G.* *Cranbrook*. 1, *Amelanchier canadensis*; 2, *Carpinus Betulus*; 3, *Abies Nordmanniana*; 4, *Cornus Mas*; 5, *Cotoneaster frigidus*; 6, *Thuya dolabrata*. —*H. J. M.* 1, *Doronicum caucasicum*; 2, *Sedum spectabile*; 3, *Polemonium coeruleum*; 4, *Pulmonaria officinalis*; 5, *Omphalodes Luciliae*; 6, *Diosma ericoides alba*. —*J. M.* 1, *Strelitzia Regina*; 2, *Sprekelia formosissima*; 3, *Polygala Dalmatensis*. —*J. H.* *Primula japonica*.

—*V. I.* 1, *Oncidium varicosum*; 2, *Lycaste tricolor*; 3, *Maxillaria variabilis*; 4, *Megacalinum falcatum*. —*R. F.* 1, *Acer Pseudo-platanus* var. *purpurea*; 2, *A. Negundo variegata*; 3, *A. Negundo aurea*; 4, *A. platanoides*; 5, *Alyssum saxatile*; 6, *Choisya ternata*. —*C. W. T.* 1, *Cotoneaster frigidus*; 2, *Prunus* species; 3, *Kerria japonica*, double var.; 4, *Berberis stenophylla*; 5, *Pyrus Maulei*; 6, *Prunus sinensis flore pleno*; 7, *Pyrus Malus atropurpurea*; 8, *Cornus Mas*, variegated form. —*A. I.* *Geranium phæum*. —*A. F. W.* 1, Not recognised, send when in flower; 2, *Rosmarinus officinalis* (Rosemary); 3, *Melittis melissophyllum*; 4, *Ruta graveolens* (Rue); 5, Not found; 6, Not recognised. —*A. H. A.* *Prunus pseudo-cerasus* variety.

FRUITS: J. J. B., Worcester. 1, Northern Greening. —*A. F.*, Salop. 1, Northern Greening; 2, Not recognised, most likely a local variety.

PALM ROOTS: J. S. Soak the roots in a rose-red solution of permanganate of potash for two hours.

PROTECTION OF FRUIT ON WALL-TREES FROM WASPS: J. S. S. Take the measures recommended on p. 299, under "Apiary," for lessening the number of wasps. When the fruits commence to ripen let the trees be protected by the use of hexagon wasp-proof netting obtainable from the horticultural sundriesmen.

PTERIS FERN: Correspondent. The leaves show injury by thrips and other pests, which have developed in consequence of the plants having been grown in a hot, dry atmosphere. Dip the plants in tobacco water, and afford them more atmospheric moisture and less artificial heat.

RATES FOR MARKET GARDEN: W. E. A. So far as rates levied under the Public Health Act, 1875, are concerned, if your nursery-grounds are in an urban district you ought only to be assessed in the proportion of one-fourth of the net annual value of the land, and it is immaterial whether the land is covered with greenhouses or not. In the case of rates levied under the Agricultural Rates Act, 1896, the rule is different. Under this Act you are liable to pay one-half of the rates in respect of so much of your land as is not covered with buildings, but greenhouses are buildings for the purposes of this particular Act. You should call the rate-collector's attention to the provisions of the above Acts.

STEINER'S VERMIN PASTE: S. H. C. You should ask the local chemist to obtain it for you from a wholesale establishment. Phosphorus Paste is very useful for the purposes you require.

VINE LEAVES: W. V. and A. B. The leaves are infested with *Botrytis cinerea*. Spray the plants thoroughly with a solution of potassium sulphide 1 ounce in 3 gallons of water. Admit as much air to the structure as circumstances will permit.

WATER MELONS: Anglo-Scot. You have been misled by this popular name for *Citrullus vulgaris*. The term Water Melon has no reference whatever to the plant requiring its roots to be near to a river or stream, but probably to the fact that the great fruits when ripe contain an enormous percentage of water themselves. There are probably more Water Melons cultivated in the United States than any other part of the globe, and the *Cyclopedia of American Horticulture*, when referring to the culture of Water Melons in Georgia, states that "like the cat and the Grape the Melon cannot bear 'wet feet.'" Your stream, therefore, would be of no use for such a purpose, and, further, this country is quite unsuited for the culture of Water Melons, the summers being much too cool for their growth. If you wish to cultivate Melons and have not the means to grow the best types of English hot-house Melons, you should select the Cantaloupe type, varieties of which may be grown in frames without very much artificial heat. See an exhaustive article on this subject published in the *Gardeners' Chronicle* for December 28, 1901, p. 495.

COMMUNICATIONS RECEIVED.—New England Dahlia Society.—S. & Sons—Rev. Prof. H.—F. C. S.—A. H.—W. B. A.—W. G. G.—G. W.—A. B.—W. G. S.—T. R.—A. C.—W. E. B.—A. W. (with thanks)—W. M.—F. M.—F. W.—L. E. W.—J. S. M.—C. W. S.—A. D.—H. W.—H. M.—R. S. L.—F. W.—Paine—D. M.—W. W.—J. C.—W. D.—A. D.—F. M.—W. J. D. G.—Dr. Murray—Sir C. S.—W. W. P.—T. H.—R. S.—A. A. P.



THE Gardeners' Chronicle

No. 1,064.—SATURDAY, May 18, 1907.

CONTENTS.

Andrena fulva, a burrowing bee ...	320	New Zealand, gardeners in ...	320
Books, notices of—		Orphan Fund, Gardeners' Royal ...	317
Fern Dimorphism ...	310	Palm-house at Kew, the Pictures at the Royal Academy ...	312
Seedless Fruits ...	316	Plant notes—	
Brussels Botanic Garden, the fernery in ...	312	Erinacea pungens ...	310
Calla aethiopica as a hardy plant ...	320	Plants, new or noteworthy—	
Cocoonuts, culture of ...	317	Clematis Sanderi ...	310
Conifers, smoke and frost resisting ...	318	Pruning fruit trees ...	320
Cordylina australis in the open in Norfolk ...	318	Rosary, the—	
Cultural memoranda—		Rose canker ...	313
Zauschneria californica ...	314	Smoke-smudges in orchards ...	318
Cushion plants ...	311	Societies—	
Dresden exhibition ...	318	Manchester and N. of England Orchid ...	323
Enkianthus, the genus ...	311	Mannheim, International Exhibition at ...	323
Flowers in season ...	317	Royal Horticultural ...	321
Fruit plantations, observations in ...	309	Strawberry Royal Sovereign ...	320
Fruit trees, boring pests of ...	318	Sundial, the adjustment of a ...	324
Fruits, seedless ...	316	The Fernery—	
Hemp, Magney or Sisal ...	317	Fern dimorphism ...	310
Hillingdon Court, Uxbridge ...	319	Water, forcing by means of ...	320
Kew notes—		Week's work, the—	
Cytisus Beani x ...	313	Flower garden, the ...	315
Rhododendron racemomum ...	313	Fruits under glass ...	314
Obituary—		Hardy fruit garden ...	315
Barnes, Dr. Robert ...	323	Kitchen garden, the ...	314
Bourne, Rev. S. E. ...	323	Orchid houses, the ...	314
Lee, Jesse ...	323	Parks and gardens ...	315
O'Reilly, William ...	323	Plants under glass ...	315

ILLUSTRATIONS.

Acantholimon echinus, a "cushion" plant ...	311
Cordylina australis in the open, in a Norfolk garden ...	318
Erinacea pungens growing in Cambridge Botanic Garden ...	310
Palm-house at Kew, a view in the (Supplementary Illustration) ...	
Smudge-pots in an Evesham orchard ...	318
View in the fernery, Brussels Botanic Garden ...	312
Water-garden at Hillingdon Court ...	319

OBSERVATIONS IN FRUIT PLANTATIONS.

VARIATIONS in the order of blossoming among different varieties of Plums in different seasons are curious. Last year the variety Black Diamond was the first to show blossom, and this was followed by Early Rivers and a few trees of Monarch which bloomed together; then Victoria, Czar, Pond's Seedling, and Gisborne's blossomed in the order given. This season Monarch and Black Diamond were first in flower, both being fully out on April 24th. Victoria came next, being three-quarters out on that date, while Czar and Early Rivers were about one-third out, but Pond's Seedling and Gisborne's were quite unopened on that date. There is no connection between earliness in blooming and in ripening, as is shown by the fact that Monarch, the latest of the Plums named, was equal first with Black Diamond in blossoming. Amongst varieties grown in small numbers only here, Coe's Golden Drop was ahead of Early Rivers and Czar in flowering, though it ripens much later, and it was considerably in advance of Oullin's Golden Gage, Old Greengage, Denniston's Superb, and Early Transparent Gage.

As the birds have not injured the buds of these choicer varieties this season, the trees are showing a fair amount of blossom, but they are not profusely covered with flowers, save in the case of Oullin's Gage, and certainly not so heavily as in the sorts grown on a large scale for market. Trees of the variety Victoria showed a magnificent display of blossom, all but last season's wood being thickly clothed with strong bloom. Purple Gage (Reine Claude Violette) is the only variety of Plum that was almost devoid of blossom this season. Whether it is regularly a shy bearer or not I cannot say, as I have had no experience with it, except with two trees which are less exposed to the sun than other trees in the same orchard.

Worcestershire Prune Damsons, planted six years ago from last autumn, were profusely covered with blossom for the first time. From 160 of these trees, planted to shelter Apples, I have not had a bushel of Damsons in the five seasons up to 1906 inclusive. This season each tree promises to produce a bushel of fruit. The trees came into blossom simultaneously with Monarch Plum.

One observation on Plums is connected with the extension system "run mad." I wish Mr. Simson could have seen my trees of Victoria Plum before they were pruned. Nearly every new shoot—in many an instance a yard or more in length—was bow-shaped, and in many cases one branch was hanging over another. This has been the style of growth ever since the trees were planted, and it may be imagined what the trees would have been like if they had not been pruned annually to buds pointing upwards. They would have presented a tangled mass of branches bending towards, and many of them touching the ground, whilst, at the same time, the branches would have been much too thinly disposed, particularly in the centres of the trees. As it is, they are thoroughly well furnished with sufficiently sturdy branches.

Hitherto no frost has harmed the Plum blossom in this district. There were 4° of frost on two occasions after Monarch and a few other varieties were showing bloom; but not the slightest damage is noticeable, even to blossoms facing upwards, though in low situations in the Evesham district some damage is reported to have been done. I am, however, sorry to record the presence of the dreaded Plum aphid. The pest was first noticed on a few leaves on many trees on May 6. It was expected to follow the bruising of the foliage by the violent gale of May 2; for, although it is not clear why this should be, the pest always seems to attack injured vegetation most severely. The popular idea among farm labourers and others is that east winds "bring" the green fly, but there is no way of accounting for cold winds acting as the agency, except so far as the checking action of a cold wind gives the pest a chance of making a successful attack upon tender foliage. Whence the enemy came—where it was harboured—is a mystery to me. Careful examination at the bases of hundreds of fruit buds, where the brown or purplish viviparous females are stated to be harboured in a quiescent state, failed to reveal any. Now there are only too many, as well as their progeny, the green lice. Spraying with soft soap and quassia has been performed in the hope of checking the spread of the pest, protected

though it is in the curled leaves. Last year the trees were smothered with this aphid.

Several trees of all varieties of Apples have been examined, but only seven aphides have been found on them. Better still, not a single Apple sucker has been seen.

APPLES.

Here and there an Apple blossom was open on April 27. Irish Peach was the most forward, and this variety was closely followed by Bismarck, Warner's King, Stirling Castle and Duchess of Oldenberg, while Early Julien and Blenheim Pippin were a little later in expanding their flowers. Here, again, the connection between early blooming and the ripening of the fruits is by no means uniform, Bismarck's flowering nearly coinciding with the early-ripening Irish Peach, and both were in flower before Mr. Gladstone, the earliest Apple to ripen in the plantation. Again, Warner's King is ahead in its flowering of the earliest cooking Apple in the plantation—Early Julien. Allington Pippin was earliest in leaf expansion, but it is much behind those named in blossoming.

The promise of Apples is, on the whole, good, but not quite equal to that of last year, especially in the case of some of the varieties that bore heavy crops in 1906. Allington Pippin, which has yielded remarkably well from an early age, and was allowed to bear too freely last season, promises only half a crop this year. This is also the case with Domino, the fruit of which was not sufficiently thinned last season. Golden Spire with me fruits in alternate years. It yields very heavily in one year, but is almost always devoid of fruit in the season following. Last year it cropped heavily, and this year only trees that missed fruiting last year are blossoming freely. Possibly Domino is also an alternate yielder. If so, I shall regret having planted many trees of that variety in my new plantation.

CHERRIES AND PEARS.

Early Cherries came into bloom simultaneously with the earliest blossoming Plums. As usual, there was a great show of blossom which was remarkably vigorous. Pear blossom expanded quite suddenly, late varieties being close behind early sorts in opening, and this was probably due to three hot and sunny days ending on April 25. There was a great profusion of Pear bloom, but this is so often followed by a light yield of fruit that no confidence can yet be felt as to results. In a record extending over 14 years previous to the present one, there is no entry of later blossoming of Pears than that of this season. In 1903 early varieties were in full bloom on March 31, and this is the earliest record of blooming in Pears that I possess, though it is closely followed by that of 1905, when a few blooms expanded on the same date. Next in earliness was April 7, in 1894, while April 15 was the date in at least two other seasons. The season of 1903, it may be added, was an exceptionally early one for all classes of vegetation, early-blossoming Plums, as well as early Pears, being fully expanded in flower on March 31, whilst early Apples were in bloom on April 15, and spring flowers were all correspondingly forward.

BUSH FRUITS.

Gooseberries have rarely been as late in blossoming as they were this season, April 14.

being the date of their full expansion. In 1903 and 1905 it was March 31. The promise of the crop is a very good one in my case, as birds did not attack the buds after the bushes had been sprayed. Black Currants are later in the blossoming stage than they have been in any previous season since my records were commenced. The blossoms have often been expanded by the middle of April, and this year none was out on April 27. Red Currants, on the contrary, were as forward as Gooseberries, being fully out on April 14. Usually this fruit is a week or two behind the Gooseberries in flowering. Both Red and Black Currants promise well.

Strawberries, grown only in my private garden, where the soil is not heavy enough for them, showed a blossom or two only on April 27; and Raspberries had then only just begun to show a few flowering buds.

Fully double the average of rain for the month has been registered during April, and this will be helpful to all kinds of fruit trees, provided that sunny weather follows: for young plantations of trees and bushes it will be especially beneficial. *A Working Grower.*

NEW OR NOTEWORTHY PLANTS.

CLEMATIS SANDERI.

In a cold greenhouse at St. Albans there is now flowering a Clematis which differs from all other species known, in having white flowers with a conspicuous brush-like cluster of salmon-red stamens. Messrs. Sander & Sons obtained the plant three years ago from Australia, where it was discovered wild on a mountain, they do not say where. In a very broad sense it is *C. aristata*, found everywhere in Australia, and, consequently, a very variable plant, so variable indeed that some botanists would make a dozen or more species out of it. The type was figured in the *Gardeners' Chronicle*, July, 1902, p. 56, and has large ovate lanceolate leaflets and white flowers with green anthers. The form there represented is a male, but the female form is now in flower at Kew. *C. Sanderi* is quite distinct from these. It is an evergreen, with the habit of *C. indivisa*, but is less robust; the leaflets are narrow-lanceolate, 1 to 2 inches long, markedly dentate, and dull green. The flowers are in axillary clusters, sometimes occurring in bunches of a dozen or more; they have a slender, straight pedicel 2 inches long; the four white sepals are an inch long, narrow, and elegantly recurved, and the stamens (this plant being a male) are half-an-inch long, and form a regular, double-daisy-like cluster, their bright salmon-red colour making them attractive and pleasing. The flowers are very fragrant and lasting. *W. W.*

THE FERNERY.

FERN DIMORPHISM.*

This book is a very interesting contribution to this branch of research by Dr. H. Christ, of Basle, with special reference to the genus *Stenochlœna*. The Ferns forming this family occur in the tropical forests, and commencing by rooting into the soil, ascend very high trees by means of creeping rhizomes, whence the fronds spring successively. The peculiarity dealt with by Dr. Christ is their production of two quite different kinds of fronds, independently of the difference

between the barren and fertile ones, the latter being contracted. Normally the fronds are once divided, the side divisions being lanceolate if barren, but linear if fertile. These forms, however, are those which characterise the higher growing portions of the plant, but at the ground level or near it the growing rhizome is densely clothed with small fronds of a much divided character and of such different appearance as to have misled numerous botanists, the result being their allocation to the genera of *Asplenium*, *Davallia* and others. A singular feature in these fronds is that they are not merely different in form and cutting, but they approach the prothallus in the nature of their cellular structure, and furthermore they occasionally produce pseudo-sporangia and pseudo-indusia of the *Asplenium* type, which Dr. Christ considers as evidence that the *Stenochlœna* family has diverged from *Asplenium*. The production of these almost Hymenophyllum-like basal fronds he considers as an evolutionary outcome of the need of provision to the higher placed fronds (growing perhaps 20 or 30 metres high in the crowns of the trees), of a water

suggested that the decomposed basal fronds are due to the same cause as has led to the formation of dimorphic leafage of the Water Crowfoot, the damp and shady conditions at the foot of a tree representing the submerged conditions of the decomposite leaves of that species, while the lighter and drier conditions prevailing above induce simpler foliage and consequently reduced transpiration. I can hardly imagine, too, that a climbing Fern of the type described depends very greatly upon a basal water supply for its upper growths; epiphytal Ferns usually root freely as they progress, and thus obtain a local supply from the bark and debris they encounter in their progress. *C. T. D.*

PLANT NOTES.

ERINACEA PUNGENS.

ALTHOUGH introduced from Spain in 1750, this plant is still rare in gardens, owing, perhaps, to its not being perfectly hardy in the



FIG. 129.—ERINACEA PUNGENS IN CAMBRIDGE BOTANIC GARDENS. FLOWERS BLUISH-PURPLE.

supply which such a growth near the ground and in the shade would assist in furnishing. There are numerous illustrations showing the difference between the lower and the upper frond systems, and also the one merging into the other. He also cites the existence of an *Asplenium* with similar habit of growth, which also produces tripinnate fronds when young, these being followed as the rhizome climbs to the light by fronds like those of *Stenochlœna*, but with the *Asplenium* fructification, such as is seen in pseudo form on the young *Stenochlœna*, fully developed. The notes have a practical interest for Fern raisers, as the extreme difference of the young plants from the adults is very likely to mislead, and from the facts given it may also be deduced that under cultural conditions of shade and moisture the higher type of frond might not appear at all, and a *Stenochlœna* seedling would thus be taken for a *Davallia* or other imitated species. As opposed to Dr. Christ's conclusions, it might be

colder localities of this country. It is, however, well worthy a trial in a sunny, sheltered position on the rockery or elsewhere, and under favourable conditions it forms a much-branched, spiny, and almost leafless little bush, 9 inches in height, and a foot across. The flowers are produced during the summer months, six or eight together, on a short inflorescence, and they are of a bluish-purple colour. The photograph represents a plant growing in the Cambridge Botanic Gardens in a sheltered position at the foot of a south wall, in which position it flowers splendidly each summer. It is a somewhat difficult plant to propagate, but this can best be accomplished if the cuttings are inserted in sandy soil in the autumn and placed in a cold frame, where some of them will commence to sprout the following spring. Like many other plants, it is known under several names, two of which are *E. hispanica* and *Anthyllis erinacea*. *E. J. Allard, Botanic Gardens, Cambridge.*

* "Fern Dimorphism," by Dr. Christ.

THE GENUS ENKIANTHUS.

This small genus of Ericaceous plants is peculiar to Eastern Asia, extending from the Eastern Himalaya through China to Japan. Some nine species are at present known. Three of these are peculiar to China, five to Japan, and one (*E. himalaicus*) is common to Western China and Eastern Himalaya. *E. quinqueflorus*, on which the genus was founded, is native of Hong Kong and the warmer parts of South-eastern China; a variety occurs in Hupeh and Yunnan. The rest of the genus inhabit the hills of the regions mentioned above, and in China ascend up to 11,000 feet altitude. The species found in Central and Western China are remarkable for the richness and brilliancy of their autumnal tints, which vary from bright yellow to the richest crimson, and are peculiarly fascinating. The Japanese species probably exhibit similar phenomena, but I can find no reference to such save the yellow tints of *E. japonicus*.

The species found in temperate China are social in habit, forming thickets on precipitous humus-clad cliffs, and are usually associated with *Rhododendrons*. All are remarkably free-flowering, and their presence when in flower may be easily detected by the ground beneath them being strewn with fallen "bells."

E. QUINQUEFLORUS, the "Tiao Chung" (suspended bells), is one of the flowers most highly prized by the Chinese. It blossoms in February and March, about the time of their New Year, and is used in great quantities for the decoration of their houses, temples, and guild-halls. The branches are gathered whilst the flowers are still in the bud stage, and on being placed in water soon open and last fresh for a considerable time. A little before the Chinese New Year the Tiao Chung, with *Pæonia Moutan*, Heavenly Bamboo (*Nandina domestica*), and double-flowered Peaches, is on sale in the streets of all the towns from Shanghai (at least) south. This species is still fairly plentiful in Hong Kong and the adjacent mainland, where its ruthless gathering is prohibited. The other species are not particularly valued by the Chinese, though they are not less beautiful.

Most of the species are now in cultivation in this country, but not with any great success, and good examples are rare. *E. quinqueflorus* is, of course, too tender for general outside culture in this country, and most of the others suffer from our late spring frosts, at least in the neighbourhood of London. All the species are slow-growing and rather difficult to establish, yet so beautiful are they that it is to be hoped more attention will be paid to them in the future than has been the case in the past. Like the great majority of Ericaceæ, *Enkianthus* are regarded as peat-loving plants and are usually treated in the same way as *Rhododendrons*. They revel in sunshine, but must never suffer from drought at the roots. In their native habitat the Chinese species, at any rate, do not have peat to grow in but content themselves with the thin layer of humus covering the granite rocks. The climate is one where a copious rainfall alternates with bright sunshine.

Enkianthus are easily raised from seed, and seedlings grow away fairly rapidly. Cuttings of one or two years old wood inserted in sandy peat, under glass, in a cold frame in spring, will make roots though not very readily, and they require great care in potting and transplanting. This same care is necessary in transplanting at any stage.

The species are nearly all twiggy in habit, with branches more or less whorled, and the leaves clustered at the ends of the shoots. The flowers are always pendulous, and either bell or urn-shaped. In colour they may be white, as in *E. japonicus*, or rose-coloured or rose and white, as in *E. quinqueflorus*, but in the majority of the species they are yellow, suffused, or striped with red.

This genus was founded by Loureiro on the South China plant (*E. quinqueflorus*) but he "mistook the coloured bracts for the calyx, the young leaves for the corolla, the real flowers for the floscule of a compound aggregation of florets." (Lindl. *Bot. Reg.* under tab. 884.) With such a bad beginning it is only to be expected that confusion should obtain as fresh species were discovered. In dealing with the subsequently discovered Japanese species, Miquel (*Ann. Mus. Lugd. Bat.*, i.) placed them all under *Andromeda*, and associated *Pieris* with the same genus. *Enkianthus* differs from *Andromeda* technically only in the seeds, which are large with a lamellate winged testa, whilst in the latter genus they are small with an appressed smooth testa. In habit, however, they differ widely, *Enkianthus* being really much more closely allied to *Pieris*, but very readily distinguished therefrom. Maximowicz and others followed Miquel in part, and it is only very recently that all the Japanese species have been placed under the right genus. The species are still much confused as we shall show presently.

Palibini in a very excellent paper (Rev. Gen. *Enkianthus* in *Script. Bot. Hort., Petrop.*, fasc. xv., 8) compiled a workable key for the genus which, with one important alteration and some modifica-

III. *ANDROMEDINA*.—Fruits pendulous, flowers racemose, appearing after the leaves; corolla five lobed, urn-shaped—*E. subsessilis*.

IV. *MEISTERIA*.—Fruits pendulous, flowers racemose, appearing after the leaves; corolla campanulate, lacinate-dentate.

Corolla twice the length of the calyx-lobes, filaments and anthers equal—*E. nipponicus*.

Corolla three or four times the length of calyx-lobes, filaments twice the length of the anthers—*E. Meisteria*. *E. H. Wilson*.

(To be continued.)

CUSHION PLANTS.

IN hot, dry, wind-swept regions plants not infrequently assume a "polster," or cushion-like appearance, as shown in fig. 130, copied from the *Annalen des K. K. Naturhistorischen Hof-Museums of Vienna*. The plant represented is not a Cactus, though it might be mistaken for one. It really is a member of the family *Plumbaginaceæ*, named *Acantholimon Echinus*. We are not answerable for the name, we simply illustrate the plant to show how subjects of the

most varied affinity may assume the same habit when exposed to the same conditions. The plant has to contend against drought, extremes of heat, cold, wind, and the ravages of browsing animals. How it does this is well shown in the illustration. We are not aware whether this particular species of *Acantholimon* is in cultivation or not, but there are others such as *venustum* and *glumaceum* which are excellent plants for the rockery, and in addition to their compact habit and spiny leaves bear very attractive rosy flowers. In the Chelsea Botanic Garden, now under the excellent management of Mr. Hales, we have known one of these species on the rockery surrounding the pond in the centre of the garden for at least half a century, a circumstance that shows that it has great powers of adaptation not only to conditions such as exist in Asia Minor, but also to those which surround it on the banks of the Thames and in the midst of a smoky suburb. Drs. Penther and Zedebauer thus speak of these plants in the publication referred to:—

"Characteristic of these regions are the species of *Astragalus* and *Acantholimon* which are found mostly on sandy and stony ground. The cliffs are covered, especially in the eastern districts, with these spiny cushions, which

are well protected against the flocks of sheep and herds of goats, which spare no other plants, and owing to which all herbaceous growth by the end of July has been bitten off, and nothing remains above ground for the botanist. A few species seem to be preserved, thanks to the protection of the thorny tufts, as they are able to proceed with their growth through the middle of them. In this way only have I ever found, for example, *Cerastium argæum*, in the *Astragalus* cushions."

"By what means is this cushion-like shape produced, and what advantage does it bring to the plant? One of its chief causes is the rough wind which blows almost daily over the barren and treeless slopes. By causing too much drought (of water) the growth of the plants in height becomes checked, and the production of numerous side-shoots ensues. The inner part of the cushion-like plant holds the water longer, and evaporation, therefore, is less." This prevention of evaporation produces the needle-shaped leaves of *Acantholimon* and the small, hairy leaves of the species of *Astragalus*."



FIG. 130.—A "CUSHION" PLANT: ACANTHOLIMON ECHINUS.

tion is adopted below. Palibini dealt with the Japanese species in a masterly manner, but evidently he had not seen specimens of the more recently discovered species from China.

I. *EUENKIANTHUS*.—Fruits erect; flowers in umbels appearing before the leaves; corolla unequal at base from the presence of five large nectaries.

Flower-stalks curved downwards, corolla campanulate, gibbous at base—*E. quinqueflorus*.

Flower-stalks straight, spreading; corolla urn-shaped or globularly so, saccate at base—*E. japonicus*.

II. *ENKIANTELLA*.—Fruits pendulous; flowers appearing after the leaves; corolla five lobed, equal at base.

A. Flowers sub-umbellate.

Leaves serrulate-aristate, hairy; anthers, style, and ovary glabrous; fruit ovoid—*E. campanulatus*.

Leaves serrulate, hairy; anthers, style, and ovary setulose; fruit globular—*E. himalaicus*.

Leaves serrulate, glabrous—*E. chinensis*.

B. Flowers solitary, rarely in pairs—*E. pauciflorus*.

THE FERN-HOUSE IN THE BRUSSELS BOTANIC GARDEN.

A RECENT number of the *Tribune Horticole* mentions that the large Fern-house in the Botanic Garden in Brussels has been greatly altered. M. Dumilieu, a well-known designer of rockeries, has veiled the end wall of the house with a rock-work simulating the entrance to a cave, and in the interstices are set plants of appropriate foliage. Varieties of *Sansevieria*, *Philodendron*, *Begonias*, Ferns, are there, and two large *Livistona australis* are arranged one on each side, as well as large specimens of *Howea* (*Kentia*) *Forsteriana*. From the top, which is reached by a flight of irregular steps cut in the rock, the water flows in a cascade into a basin and then runs into a brook that winds across the house. This large Fernery includes some fine Tree-ferns, principally from Brazil: *Cyathea arborea*, 32 feet high; *C. Schanschin*, 16 feet; *C. medullaris*, 22 feet; *C. insignis*, 19 feet; *Alsophila armata*, about 10 feet; *Cibotium regale* with a trunk measuring 6½ feet, bearing 10 leaves, 16 feet in span; *C. Wendlandi*, the trunk 8½ feet, with 10 fronds; *C. Schiedeii*, trunk 2½ feet, with 16 fronds; *Angiopteris evecta* var. *Teysmanniana* from Java, 6½ feet in circumference and with 14 fronds; while among Palms especially noticeable are three *Howea* (*Kentia*) *Forsteriana*, 32 feet high; *Livistona australis*, 39 feet; and *Pandanus furcatus*, 32 feet high and 26 feet across.

ROYAL ACADEMY, 1907.

FOR several years past garden subjects, and pictures of flowers and fruits have been badly frozen out from the annual exhibition of paintings at Burlington House; the old aggressive smears of yellow and red stated to be representations of Daffodils and Roses have either been kept at home, or sent elsewhere. Portraits are again strongly in evidence, gentlemen with golf-sticks, guns, fishing-rods, swords, and sham rolls of MSS., huntsmen with hunting whips and dogs, others with motorcars, are plentifully represented, the maximum representing idleness, the minimum work. The ladies are mostly shown smiling in a heartless fashion, either seated in an unusual manner upon sofas, or standing in a set attitude. The portraits are mostly pure commercial products. Next there are the landscapes and seascapes, many of a high class. British artists excel in this work, and many pictures in the Academy give evidence of long and painstaking study. Figure subjects vary greatly. Some exhibit considerable thought, study, and work; others absolutely nothing. There are 1,845 works of art exhibited; perhaps 100 are worth study or possession. In Gallery I., amongst pictures by Leader, Wyllie, and others, and omitting all portraits and figure subjects, are:—21, *Grass Fields on the French Coast* (H. W. B. Davis, R.A.): this stands out as one of the best productions. In Gallery II., *Across the River* (David Murray, R.A.) is a fine, somewhat roughly-executed landscape. 94, *Emblems of Ancient Faith* (Edith Sprague), seems to be a floral subject, perhaps with *Pyrus japonica*, but it is on the skyline and practically invisible. 128, *Roses* (Rose E. Welby) is a well-executed picture of pink and yellow Roses in a regulation ginger jar. 136, *Sunset* (George Clausen, A.), is a powerfully-painted picture of hovels, bushes, a pool of water, and setting sun. 140, *Golden Fruit and Flowers* (E. T. Sutcliffe) (placed over the portrait of the Chief Officer, London Fire Brigade), is an apparently well-executed picture of Oranges (some in tissue paper), cut Lemons, Daffodils, and Violets, with a punnet on edge. However well done this class of subject may be, the tiresome iteration of the objects painted palls on those who have seen hundreds of such before. Gallery III.—*Ceylon Leopards* (J. M. Swan, R.A.): a powerfully-painted but somewhat rough

picture of two very much awake leopards sprawling amongst a profuse growth of Orchids, possibly lying in wait for some nurseryman's Orchid collector. This picture would do well for the Orchid Committee's alcove of the Horticultural Hall. It would illustrate some of the difficulties in the way of collecting choice Orchids. In this Gallery is a second fine work, 188, *Mid-day* (H. W. B. Davis, R.A.). In Gallery V.—322, *Anemones* (R. Willes Maddox): these are purple and white garden Anemones, in a china vase, placed in the middle of the picture, with a bloom or two at the base. There is a fine non-commercial portrait of a distinguished man near by,

Michael's. right hand closely resembles a cigarette. Gallery IX. is a room containing small pictures, and here we meet with flowers and fruits. 611, *Roses* (A. Miles Albert), shows, to us, no appreciation of Roses. 616, *Primulas* (Mary M. McCulloch): *Primula obconica* in a little vase in the centre of the picture. 625, *Fruit* (A. F. W. Hayward): a bunch of Grapes, two or three unripe Bananas, and a few Cobnuts. Next to this is 626, *The Little Brook* (George Clausen, A.). 655, *White Roses* (Alice van Haddeghem): no good to rosarians. 722, *Roses* (Ethel Woods): extremely rough. Rough work does very well for old thatched cottages, hovels, and ploughed



FIG. 131.—VIEW IN THE FERN-HOUSE IN THE BOTANICAL GARDEN, BRUSSELS.

in 335, *Arthur Evans, Esq.* (Sir W. B. Richmond, R.A.). Further on is *Building the Rick* (George Clausen, A.). Gallery VI.—388, *Roses and Crystal* (Ferdinand Sinet): somewhat roughly executed, with suggestions of *Acacia* and other plants. 451, *From the Riviera* (A. Miles Albert): a rather rough study of Anemones in a flat bowl. This picture is on the ground line, and one has to kneel to see it. Gallery VII.—512, "*All in the blue unclouded weather*" (Alfred Parsons, A.), is a masterpiece of art. In Gallery VIII. there is a good and lifelike portrait of the late Sir Michael Foster (the Hon. John Collier). It is unfortunate that the piece of chalk in Sir

fields; it is not suitable for Roses. No subjects demand a foundation of careful drawing more than plants. Gallery X.—*Oreads* (Annie L. Swynnerton): living statuary on a rock in the sea, with marine fishes. We were under the impression, till we were instructed by this picture, that the nymphs called oceanids, nereids, and naiads, belonged to the waters, and that oreads frequented mountainous dry land; but perhaps the names have been changed lately, as a jobbing country gardener once told me when I gently remonstrated with him as to his startling new nomenclature. Gallery XI.—*Wistaria* (David Murray, R.A.): a

large, effective picture with *Wistaria* trained horizontally across the painting on the top of a wall; although the picture is named *Wistaria*, no attempt whatever has been made to draw either the blooms or foliage. 882, *The Nun's Garden* (Alfred East, A.). In this there is no garden whatever, but a mere patch of rough grass amongst tree stems; the name is perhaps satiric.

The Water-Colour Room must conclude our notice. 897, *A Bowl of Azaleas* (Edith Barrow): the *Azaleas* are white, and the picture is on the sky line, and beyond careful observation. 907, *Brier Roses* (Lucien Davies): a picture of pretty ladies by an admirable and well-known figure painter. The vegetable Briers are only property Briers. 916, *Primulas* (Edith Barrow): the flowers are those of *Primula sinensis*, the picture is on the sky line. 954, *Azaleas* (Edith Barrow): white *Azaleas* in an earthenware jug; very creditably drawn and coloured, but one has often seen these white *Azaleas* painted. 968, *Iris* (Lucien Davis): two pretty ladies by a pool, the vegetable "Iris" or *Irids* are shadowy and inconsequent. 973, *Lilies and Larkspur* (Alfred Parsons, A.): a most beautiful and carefully-executed garden view with *Lilies*, *Larkspur*, *Roses*, and *Iris*. 979, *Roses and Christmas Roses* (Woodhouse Stubbs): a vase with these blooms and winter *Cherries*, on the sky line. 987, *Rhododendrons*, by the same artist, appears—like the last—to be a good picture, but it is also on the sky line. 1,009, *Paonies and Iris* (Alfred Parsons): this includes deep crimson-coloured *Brier Roses*, all drawn and painted with the highest skill. 1,017, *Spiraea gigantea*: by the same artist, including *Iris* and *Water Lilies* in a pool. The picture is in every way admirable, not only the flowers but the perspective of the foliage in the trees is surprisingly good; detailed in the foreground and less detailed in the more distant bushes. Nothing is more difficult in floral art than to paint flowers and leaves on a miniature scale. Mr. Parsons' work is almost miraculous. We called the attention of a friend—an exhibitor—in the water-colour room, to the fineness and beauty of Mr. Parsons' work, and he replied: "Oh, yes; but do you know how long he takes over these things? Why, he will spend a day in painting the sky of some of his larger subjects." Some artists don't want to study or expend time on pictures. There are several dismal failures in this class of drawing in the water-colour room. 1,036, *Pomona's Bounty* (Arthur Dudley): half-peeled and quartered *Oranges*, fine *Apples*, *Cherries*, and a punnet. 1,044, *Lobster, Trout and Mullet*, by the same artist: this includes a peeled *Lemon* and *shrimps*. Both these works are hung on the sky line, and, being placed so high, no proper opinion can be formed of their worth; from a distance they appear to be well done, but such subjects cloy on one from their painful iteration at exhibition after exhibition.

We now arrive at the final "screen." On this there are several old garden scenes, flower groups and landscapes, but none is distinguished, or calls for special notice. In the garden views it is not in some instances easy, if at all possible, to recognise the plants. There is the perennial *Harbinger of Spring*, 1,093, a *Primrose* plant on a bank (J. Jessop). 1,096, *The Parthenon: Moonrise* (A. J. Mavrogordato): this picture represents the *Parthenon* and other buildings as seen at night with the moon just rising; a great amount of experience and technical skill would be required to draw these buildings as they are seen by daylight. Why does not someone paint the interior of the *Acropolis Museum* as (not) seen at midnight, or the *Parthenon* room at the *British Museum* at night after the electric light has been switched off; either of these subjects would make a good "nocturne." Your Artist.

CORDYLINE AUSTRALIS IN NORFOLK.

WE have had frequent opportunities of noting the hardiness of these plants in Devonshire, Cornwall, and various parts of Ireland, but we have not previously noted the occurrence of the plant in the Eastern Counties. A correspondent now favours us with a photograph of a so-called "Cabbage-Palm," which is, of course, neither a *Cabbage* nor a *Palm* (nor is it the true *Cabbage-Palm*) growing in a small garden in West Norfolk, about a mile from the sea. It was raised from seed sent from New Zealand and planted out in 1895. In the winter of that year it was killed to the ground, but recovered in the following spring till it has now attained the height of 15 feet. *C. australis* has sessile leaves, *C. Banksii* has long-stalked leaves, and there are other distinguishing features in the flower and inflorescence which are not available in this case.



FIG. 132.—CORDYLINE AUSTRALIS IN NORFOLK.

THE ROSARY.

ROSE CANKER.

THIS disease, which attacks all classes of the *Rose*, and causes eventually the death of the plant, is due to a fungus attacking the rind, which assumes patches of black colour. A Pomeranian gardener states in the *Gartenwelt* that his losses annually reach at the least 10 per cent., and under unfavourable conditions to 50 per cent., being much higher than the losses from any other disease. Usually the shoots of plants that are protected from frost by heaping soil over them, when taken out of the covering appear strong and of a green colour; but the affected shoots show the fungus on them as soon as exposed to sunshine; and it is advised to remove such shoots forthwith, for the disease soon spreads round them and infects the wood itself, hindering the flow of the sap through decay, and the plant may die in the course of the same summer. The fungus attacks

Roses whether heavily or lightly covered, or when not protected at all against frost, and in sunny or shady situations. Dwarf *Roses* of all varieties suffer less than standards, but mostly those with soft "water shoots," as, for example, *Mme. Berard*. In the gardening journals there have appeared for some years notices of canker patches on *Roses*, but it is not certain if these, in all cases, are caused by *Coniothyrium*. One correspondent of the journal mentioned writes that, so far, he had not noticed in his garden in Silesia the disease on *Rosa rugosa*, *R. canina*, or on *R. centifolia cristata*. Mostly, as he states, the fungus attacks the snags at the beginning. It is hoped that further research will throw light on the origin of the fungus, and the best means of combating its attacks. F. M.

KEW NOTES.

CYTISUS × BEANI.

ABOUT 14 years ago the introduction of *Cytisus* × *kewensis* caused great interest, for it was distinct from anything then in cultivation. It is of prostrate habit, bears creamy flowers in great profusion, and forms an excellent subject for the rock garden, or for covering bare ground. *Cytisus kewensis* has now been supplemented by another hybrid of somewhat similar habit, but with golden coloured flowers, and, as in the case of *C. kewensis*, *C. Beani* originated as a natural hybrid, the seed parent in both instances being the Alpine species *C. Ardoini*. It is considered the pollen in the older hybrid was from *C. albus*, but the male parent of *C. Beani*, judging from the general appearance of plant and flowers, is thought to be *C. purgans*. *C. Beani* is usually of prostrate habit, though it sometimes attains to a height of 6 or 8 inches, with the side branches arranged in a drooping manner. The appearance of the wood suggests *C. purgans* rather than the other species, as also do the leaves. The flowers are developed with the greatest freedom during the second and third weeks of May. They are similar in size to those of *C. purgans* and are of a beautiful golden shade. Like other plants of the same genus it gives little trouble to the cultivator if planted in a sunny position in a light loamy soil. It can be increased rapidly by means of cuttings inserted during the latter part of summer. The second name is in compliment to Mr. W. J. Bean, the Assistant Curator of the Royal Gardens, Kew. The plant may be seen in flower at Kew in the vicinity of the tea pavilion.

RHODODENDRON RACEMOSUM.

SELDOM has this pretty *Rhododendron* been seen in such perfection as at Kew early in May this season, the absence of frost during the past few weeks having allowed the flowers to open without injury. Messrs. Jas. Veitch and Sons, of Chelsea, introduced the plant 15 or 16 years since, and, similar to many newly introduced plants, it is of Asiatic origin, Western China being given as its home. In some respects it differs widely from other *Rhododendrons*, and it is of rather weak growth. Often the plant forms a compact mass of growths a foot or more high, but sometimes it assumes a more open habit of growth, and it then grows considerably higher. The tallest plants at Kew measure about 3 feet. The leaves are small, 1 to 1½ inches long, deep green above and glaucous beneath. The flowers are small, about ½ of an inch across, and the colour in some varieties is bright pink, but in others almost white. The flowers are produced in small, axillary clusters, and in some instances they are developed from almost every bud on growths 9 or 12 inches in length, the whole branch forming a raceme of flowers. At Kew several large masses of this *Rhododendron* are to be seen, notably behind the *Palm* house, in the neighbourhood of *King William's Temple*, and in the vicinity of the *pagoda*. W. D.

CULTURAL MEMORANDA.

ZAUSCHNERIA CALIFORNICA.

THIS pretty pink-flowered Pentstemon-like plant is not at all common in gardens, in spite of its having been introduced nearly three-quarters of a century ago. I have recollections of the plant in the gardens at Howick Hall, Northumberland, when my father was in charge in the period 1849-75. It was, although quite hardy in that part, not particularly showy as a plant for filling a bed, though doubtless effective enough on a rockery. It never seems to have occurred to anyone, then or there, that the beauty of the plant could be made more effective by cultivating it differently to ordinary herbaceous perennials. The plant has a weak, thin habit, and to show it off to advantage it needs, if planted wide apart, slight support from small flower sticks. A good method of treating the plant is to afford rich ordinary garden soil, and to plant it about 18 inches apart, and in April or early in May, as the side shoots develop in length, to layer them, fixing the shoots with pegs in the manner usual with Strawberry runners, leaving a few shoots erect. At the end of May the layers will have rooted, and they may be separated from the mother plants, and transplanted, each with its mass of roots and soil, to another bed, at from 6 to 8 inches apart. By the end of July the plants will be touching each other, forming a well-filled bed. Such plants begin to flower in the month of June, and continue till November. Another method is to keep stock plants for layering purposes, doing this as soon as the shoots have grown to a sufficient length. These early layers from potted stock plants should be potted-up singly, and planted out in May in beds or borders. It is a very charming plant when managed in the methods described. *F. M.*

The Week's Work.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Tomatos.—These should be nice, sturdy plants by this time, and in a condition to be stood out-of-doors in a position where they can be afforded protection at night. Such protection should be continued until nearly the end of the present month, when the plants may be put out into their permanent quarters. If the pots are becoming filled with roots, let the plants be given frequent waterings with liquid manure. If the first truss of fruit has set on each plant before it is planted out, ripe Tomatos will be available for consumption much earlier than otherwise, always provided that the plants are not allowed to become "hard" or stunted through the roots remaining for too long a time in small pots.

Broad Beans.—Plants raised from seeds sown in boxes early in the year, and that have been planted out after being well hardened as previously advised, will now be in full flower, and will soon require to have the tops pinched off them to prevent the black aphid from attacking them. This topping will also strengthen the plants, which the Beans will set earlier than if the plants were allowed to keep growing. Another batch might now be sown, of the Long Pod or Green Windsor types, and if Broad Beans are much in demand, further sowings might be made in the second week in June and at the end of that month. The crop is not always a success in hot, dry seasons if sown much later than the latter date. Sow also the white, or green-seeded varieties of Haricot and Butter Beans.

Turnips, &c.—Early sowings will now require thinning, and the work should be given immediate attention, as growth will now be unusually quick. If neglected in this matter, the plants will develop large leaves at the expense of the roots. Further sowings of the larger rooted and main crop varieties should now be made; these in larger quantities, as they are not so apt to "run." Parsnips and early Carrots should also be given attention in the way of thinning.

Seakale.—The beds that have furnished their supplies for this season, and have had the litter

and pots cleared away, should now be afforded a good dressing of dung and a sprinkling of salt, which should be dug in, filling up, as this work proceeds, all vacancies among the plants, with plants obtained from last year's seed bed.

Lettuce.—Early-sown batches will now be yielding good supplies. The Petite Noire and Gotte varieties of Cabbage Lettuce appear better adapted for culture in winter and early spring than any others I have tried. The former variety was exhausted some time ago, and the latter we commenced to cut at the commencement of the present month, and it is still yielding good "heads." [Some of these Lettuces received from Mr. Honess were excellent. The leaves were most succulent, and of very agreeable flavour.—*Ed.*] Frequent sowings of both Cabbage and Cos varieties should be made to keep up a supply that will satisfy the demand.

Cauliflowers that have been brought on in cold frames as successions to the earliest batches will now be quite large enough for planting out in their permanent quarters. The recent showery weather has been very suitable for carrying out this work. Fill up any vacancies that have occurred in previous plantings. Make another sowing for raising plants to furnish crops late in autumn and early in winter.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Allos, Clackmannanshire.

Successional Pines which were shifted into larger pots last month, will be rooting well into the new compost, and must receive special attention in the matter of watering, for on no account should the soil in the pots be allowed to become dry. The water applied to the roots should first be made tepid. Ventilation should be freely admitted during favourable weather, and everything done that is possible to keep the plants sturdy and prevent them making excessive growth. Damp the paths and the borders daily, for the atmosphere of the pits should be kept very humid. Maintain a bottom heat of 85° Fahr., and a night atmospheric temperature of 75°. The day temperature should range from 85° to 95°. The best time at which to close the pit in the afternoon is when the thermometer falls to 95°, but no rule-of-thumb method can be adopted in this respect, and the atmospheric conditions must be the guide in closing the structure. If properly managed, these Pines should furnish a supply early in winter, especially such varieties as Smooth Cayenne and White Jamaica. Plants on which the fruits are swelling should be encouraged into extra growth by a high temperature and a considerable amount of atmospheric moisture. If ventilation is given during the day, close the pits when the inside temperature is at 100°. Remove all but two suckers from each plant, also any "quills" that may appear on the fruiting stems, and supply the plants with weak liquid manure as often as they require moisture.

Figs.—As soon as the first crop of these fruits has been gathered, give the trees a good soaking with manure water, and afterwards place over the pots or borders a mulching of old stable manure. Syringe the trees freely, and keep the atmosphere in which they are growing moist. A suitable heat at night is 70° and 85° may be allowed by day. Close the ventilators early to conserve the natural sun-heat.

Peaches and Nectarines.—Air must be freely admitted to houses in which the fruits are beginning to colour: a little ventilation may also be applied by the top ventilators at night-time, providing the weather is mild. Train in the young growths, and push aside or remove altogether any leaves which may shade the fruit, for the latter requires the maximum amount of the sun's rays, in order to give them a rich, mellow colour. Keep the atmosphere of the house slightly humid throughout the day, but discontinue syringing. Test the borders, and give them a good watering if it is necessary. Such an application will be sufficient until the fruits are gathered. As soon as the fruits approach the ripening stage, secure them to the wires or shoots by putting two pieces of matting crossing at right angles over each fruit. This is preferable to allowing the fruits to drop into nets. Fruits of late varieties of Peaches and Nectarines which are now stoning will swell but little for the next few weeks. The trees should

not be excessively forced. The temperature of the late Peach-house should range from 75° to 80° by day, and 65° at night. Syringe the foliage freely, especially if any signs of red spider are apparent. Latest Peaches and Nectarines will now require their foreright shoots rubbed out and others thinned. Thin the fruit by degrees. Keep green fly in check by light fumigations with XL-All vaporising compound. At this stage of their growth give a good soaking with manure water whenever moisture is necessary, and place a layer of 2 inches of mulching material over the borders.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Cattleyas and Laelio-Cattleyas.—Such plants as *Cattleya labiata*, *C. Gaskelliana*, *C. Leopoldi*, *C. Percivaliana*, *C. amethystoglossa*, *C. Trianae*, *Laelia elegans*, also many of the hybrid *Cattleyas* and *Laelio-Cattleyas* which have bloomed during the past few months, will now be making fresh growth, and where re-potting is necessary it should be attended to before the young growths commence to make new roots. These plants (especially if they are under the care of inexperienced men as regards watering) should not be overpotted, for if a large mass of soil is allowed to become very wet, it generally remains so for a long time, thus causing the roots to decay. The pots for these *Cattleyas*, &c., should be filled at least to about half of their depth with drainage material, such as broken crocks or well-dried peat rhizome. Over this place a thin layer of rough sphagnum-moss. Keep the base of each plant nearly on a level with the rim of the pot, and for the taller-growing varieties employ enough neat stakes to hold the plants firmly in their place. Make the compost firm about the roots, especially in the centre of the pot, employing of the best fibrous peat (two-thirds and sphagnum-moss one-third; freely mixing with this some crocks broken small. Where it is difficult to obtain peat of good quality, the following materials may be used with equally good results: Polypodium fibre, *Osmunda* fibre (American peat), and sphagnum-moss in equal parts, chopping the whole up moderately fine, and mixing the materials thoroughly well together, adding sufficient small crocks to keep the whole porous. When re-potting large specimens use more of the fibrous materials and less of the moss, and it is especially desirable that in the case of large specimens the compost should be made very firm in the centre of the pot. Those plants which have become unhealthy from various causes, or have deteriorated in size, should be broken up, and each growing piece repotted into pots of moderate size. Where there are many old pseudo-bulbs behind the leading growth, most of them should be cut off, and it will be amply sufficient if two or three are allowed to remain to support the new growth. If it is desirable to increase the stock of any special variety, the severed pseudo-bulbs should be carefully labelled, and afterwards placed together in large pans or garden seed boxes, which should be provided with drainage and filled with a mixture of sphagnum-moss and crocks, allowing the base of each pseudo-bulb to rest upon the surface; keep them in an upright position, and treat them like imported plants. When new growths appear they may be re-potted. My practice then is to suspend them well up to the roof glass, and when suitable growth is made to stand them upon the stage with the established plants. For several weeks after these *Cattleyas*, &c., have been re-potted, the materials should be kept rather on the dry side, merely sprinkling the surface of the compost occasionally, and affording no more water than is absolutely necessary to keep the pseudo-bulbs and leaves fresh and plump. The young roots will gradually lengthen out and attach themselves to the sides of the pot. When this has occurred the supply of moisture at the root may be gradually increased. It is necessary for the beginner in Orchid culture to bear in mind that the plants should not be kept in a wet condition at the root for long together, nor should they be again watered until the roots have become properly dry. Until the plants are thoroughly re-established in the new compost they should be carefully shaded from direct sunshine.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq.,
Eastwell Park, Kent.

Perennial Asters in pots.—In establishments where decorative flowering plants are required all through the season for the embellishment of the greenhouse or conservatory, a batch of these plants should be grown. The varieties have been greatly improved, and their colouring, habit, &c., differ considerably, so that many of them are adapted for this purpose. No time should be lost before potting some of the rooted offsets, selecting for the purpose strong single shoots farthest from the main stem. After potting, place the young plants in a cool frame for a few days, but as soon as they have recovered from their disturbance place them out-of-doors in a sunny position on a bed of ashes. When ready for re-potting, give them a liberal shift, using as a potting medium a mixture of turfy loam and well-decayed manure. Pot firmly. Copious supplies of water and a stimulant weekly must be afforded when the pots are filled with roots. Plants of single stems, well grown, develop beautiful heads of bloom, but if extra large plants are required, place three plants in a correspondingly larger pot.

Freelias and Nerines.—The amount of water afforded these plants must now be gradually reduced, and it must be withheld altogether when the foliage has died off. Place the pots in a frame close to the glass in full exposure to the sun, and admit plenty of outside air in order to aid the thorough ripening of the bulbs. In July shake the old soil from their roots and repot the Freelias, in order to have an early batch in flower at mid-winter. Freelias will not stand much forcing into flower, and should be allowed a long season of growth. Nerines succeed if left in the same pots till the bulbs are quite crowded.

Ornamental Grasses and Sedges.—*Scirpus riparius* (*Isoplepis gracilis*) is one of the most useful of the decorative grasses. Old plants that are untidy should be pulled to pieces, and the more vigorous portions from the outside of the plant be potted into small pots. Stand the pots in a structure having an intermediate temperature, and when they have started growth afresh, remove them to a cooler structure. Small, healthy plants should be potted into 4-inch pots, which are quite large enough for most purposes of decoration.

Cyperus alternifolius and C. a. variegatus.—When these plants are afforded too much shade, the leaves become thin and have little substance. *C. laxus* is suitable for growing in small pots. All the varieties of *Cyperus* are easily increased, either by division, by seeds, or from the old leaves placed in water, in which they quickly form roots. The plants should never be allowed to suffer from want of water at the roots, as their habits are somewhat those of an aquatic plant. Few subjects are more graceful for intermingling in groups of flowering plants than *Eulalia japonica* var. *variegata*. It is quite hardy, and adapts itself to cultivation in pots under almost any conditions. Its variegation is most marked when the plants are grown in warm conditions.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow,
Cornwall.

Conifers.—An inspection of these trees should be frequently made during the growing season to see that the leader is uninjured, because the preservation of this is desirable in most species to maintain the symmetry of the specimen. If any have become too much damaged to be worth retaining, the nearest well-placed shoot should be tied up to a stake lashed to the main stem. If the top of the tree is more than a few feet from the ground, use a soft ligature, such as binder-cord, so that by the time the new leader is self-supporting, the tie will have rotted and fallen away. If tarred cord or wire were used in such cases there would be a danger of the ties being overlooked, and, as the trees swelled, the ties would cut into the bark, to the ultimate ruin of the specimen. Young trees of *Abies* and *Picea*, especially of the latter genus, often form twin leaders, which, if allowed to grow, not only destroy the outline of the tree, but later on form a lodgment for dead leaves and water, which soon induce decay in the fork, and a gale eventually splits the tree at this point.

Rhododendrons.—The early removal of the seed vessels is of great benefit to the bushes. Where *Rhododendrons* are grown in large quantities it is often impossible to relieve them all, but if a start is made upon the earliest blooming varieties, and the work continued at convenient intervals, much good may be done. It is imperative that the seed vessels should be removed from all young and recently-moved plants, and from those which are showing signs of exhaustion. These latter would derive great benefit from a mulching of partially decayed manure. Remove the point from any shoots which are making undue headway to the detriment of the shape of the bush. Remove the suckers which often spring up around the stems of grafted plants.

Auriculas and Primroses.—Seeds may now be thinly sown in pans or boxes of light, sandy soil. Barely cover the seeds and place the boxes in a cold frame. Although the florist's *Auricula* is comparatively tender and susceptible to damp, the "garden" forms are hardy, and have such a beautiful range of colour and form that they should be largely grown where spring flowers are in request.

Finks.—Just before the plants open their flowers they may be given a dressing of about 4 oz. to the square yard of some artificial manure, lightly hoeing the surface soil and giving a good watering should the weather be dry. If a portion of the bed be shaded during hot, dry weather, it will greatly prolong the season of these flowers. Cuttings may be taken of the newer varieties, and those of which the stock is short, but for renewing the main beds slips inserted out-of-doors in the autumn will root readily and give less trouble.

Dahlias.—For the lack of indoor accommodation we have to plant the tubers into their flowering beds and borders direct from the store. This will be done at once before the plants have made much growth. Should frosts appear likely to occur the plants will be lightly covered with mats and tiffany. I have found this plan more satisfactory than to first place the tubers in prepared beds under trees. Such plants make weak growths—due probably to the shade and draughts.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bicton,
East Devon.

Peaches.—In these gardens a plentiful crop of fruits has set and a good season is anticipated. Very few curled or blistered leaves have been noticed, although the nights during the latter part of April were cold, and frequent showers of hail and sleet fell whilst the trees were in blossom. It will now be safe to remove the protective material from the trees on ordinary walls, but if the trees are protected by glass coping in addition it will be well to allow the blinds to remain in position for another fortnight. Continue to remove at intervals superfluous shoots; also continue the disbudding of the fruits, retaining only those that are swelling freely. Defer the final thinning of the fruits for a few weeks; they can now be reduced to three fruits to each shoot, but finally one will be sufficient to remain if the fruits are developed on an average about 9 inches apart. In reducing the number of fruits the vigour of each tree must be considered; those that are making gross growths should carry more than weakly ones. There is no necessity for deferring the final thinning until after the fruits have stoned. Warmer days and nights may now be expected, when the trees should be syringed two or three times weekly. This will promote growth and help to ward off red spider. If mildew appears, syringe the foliage with Bentley's Specific No. 2, or dust them with flowers of sulphur, washing the latter off 24 hours after it has been applied.

Apriots.—It is some years since we had such good prospects of a large crop. At the final thinning 6 inches between each fruit will be sufficient on an average for the large fruiting varieties; smaller fruiting kinds may be given 2 inches less room apart. Pinch any shoots that will form spurs, at the fourth leaf, and nail or tie in shoots required for extension, or the wind may snap them off. Maggots will quickly ruin the points of the shoots if they are left undisturbed. See that no nail or eyelet is pressing against any of the fruits.

Strawberries.—The plants are sending up abundant flower spikes, which promises well for a plentiful crop. Plants specially grown for supplying runners must have all the flower spikes removed. Transplant seedling *Alpine* and perpetual bearing varieties before they become drawn. The protection of a garden frame will afford the seedlings a start, although if they have been fairly hardened by removal of the glass light daily, and by ventilation at night time, they should be sufficiently hardy to withstand exposure, especially if placed in a warm, sheltered corner.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and
Open Spaces in the City of Cardiff.

The mixed flower border.—In gardening, as in everything else influenced by human nature, fashion and taste vary from time to time. What appeals to and is popular with the public to-day is to-morrow abandoned and probably ridiculed as an absurdity. It often happens that the pendulum of fashion swings from the one extreme to the other, and this is evident in the case of gardening, for at one time the desire is, say, for informality, and at another for everything that is formal. The correct attitude for the gardener to adopt towards such fashions under all circumstances is to judiciously use, or combine, both extremes. The decision as to what constitutes the proper place for each style of treatment is always the point where the good taste and genius of the gardener is revealed. Upon the proper use or modification of formal and informal gardening depends the pleasure or otherwise that can be derived from any garden arrangement.

The ribbon border.—For what may be not incorrectly termed "spectacular" effects, a well-arranged ribbon border—a phase of formal gardening not by any means extinct—is difficult to surpass, and is much appreciated by the great majority of visitors to parks. During recent years these ribbon borders have, in many public pleasure grounds, been replaced by mixed borders composed of groups of varying sizes of distinct kinds of plants arranged irregularly—both in form and distance apart—throughout the whole length of the border. Although very much inferior to the ribbon border from the standpoint of brilliancy, the mixed border far exceeds it in interest and variety, both of colour and character. While the former kind of planting may be composed of merely half-a-dozen varieties of plants, the latter may easily include hundreds of different species and varieties. Hence in the one case, although the beholder is usually arrested at the first sight of such an arrangement as it burst upon his view, he soon ceases to be interested or delighted with it; but in the case of the mixed border, a continual source of delight is afforded from the time it comes into view until it is left behind. To obtain the best and most enduring effects from such a border it is necessary to have the groundwork of good, hardy perennials interspersed with choice and showy annuals and biennials. A border of this description, when extensive enough, can, by a judicious selection and distribution of the plants employed, be made a very attractive object for nearly six months out of the twelve. Many of the earlier-flowering annuals and biennials, such as Sweet Peas, Poppies, Canterbury Bells, &c., can be replaced when they have ceased to be effective by late-flowering plants such as *Celosias* and *Chrysanthemums*.

"Colour" borders.—Small, isolated borders are of added interest when converted into "colour" borders—that is, restricted to the culture of plants which are all of one distinctive colour. One such border may be devoted to yellow-flowering plants of different species, whilst another may be composed of blue, red or white. Such an arrangement may seem formal and monotonous in the extreme, but in reality such is not the case, as no two species used need be exactly the same in size and outline.

Labelling.—For the convenience and assistance of the public, all groups of plants in the mixed border should be distinctly, though not obtrusively, labelled. As showing the great interest taken in this type of plant arrangement compared with the ordinary formal bedding out, it is worthy of note that we have enquiries made by visitors from distant places every year regarding some flowers noticed in our borders.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, MAY 18—German Gardeners' Soc. meet.

MONDAY, MAY 20—Bank Holiday.

WEDNESDAY, MAY 22—
Devon County Agricultural Sh. at Bideford (2 days).
Roy. Bot. Soc. and Nat. Tulip Soc. Exh., Botanic Gardens, Regents Park.

FRIDAY, MAY 24—
Linnean Soc. Anniversary meet, 8 p.m.
Roy. Bot. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—56°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 15 (6 P.M.): Max. 61°; Min. 49°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 16 (10 A.M.): Bar. 29.9; Temp., 56°; Weather—Cloudy.

PROVINCES.—Wednesday, May 15 (6 P.M.): Max. 57°, London and Ireland S.; Min. 48°, Ireland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY, THURSDAY, AND FRIDAY—

The "Clare Lawn" collection of about 4,500 Orchids, by order of the executors of the late Sir Frederick Wigan, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

A small book on this subject has been written by Dr. Richard Ewert*, director of the Plant-physiology Experiment Station at the Royal Pomological Institute, Proskau. We especially welcome its publication at the present time, when so much is heard of seedless Apples and so little is actually known of them. The term parthenocarp translated means "virgin fertility," and is equivalent to the English expression "seedless fruits."

Dr. Ewert emphasizes several points which are of importance in the production of seedless fruits. These are as follows:—

1. Before the flower-bud opens and insect fertilisation takes place, it is slightly pressed between the forefinger and thumb of the left hand and the stigma and upper portion of the style painted by means of a small brush dipped in a liquid to which the author gives the name "Kernlos." This liquid will prevent, by "mechanical and chemical action," the possibility of a pollen grain germinating on the stigma, but the nature of the liquid is not described in any way. The treatment should be carried out if possible on sunny days, or at least on days when

there is no rain. In one or two hours the "coating" dries on the style, which is thereby coloured a blackish red. This tint enables one to easily perceive whether a style has been efficiently painted or not. (We at first thought that the liquid used would be collodion, but this dries almost instantly and causes no discolouration. It would probably be worth while trying mercuric chloride or nitrate, which would kill the epidermal tissues and produce a similar stain, while it would not be washed off by rain.)

2. In order to prevent cross or self-fertilisation all the flowers must be treated in the manner described above. Those flowers which have opened before the treatment is commenced should be cut off, and also weakly ones and those injured by insects. The trees undergoing treatment should be watched and any subsequent flowers removed.

3. The trees best suited for this purpose are dwarf fruit trees, especially single cordons or pyramids, but standard trees may also be used. It is recommended that trees with not more than 300 flower-buds be chosen; 200 of the buds may at once be cut off, and the remaining ones treated.

4. Those trees should be selected which show a strong growth, and which have not borne in the previous year too much blossom or fruit.

5. It is desirable to leave untreated a tree of the same kind as those experimented with, in order to have the result of natural fertilization for comparison.

These five rules give the general principles to be observed. The author adds that the more carefully the stigma of the flowers is painted with the liquid the more perfect a seedless fruit will be obtained.

Dr. Ewert's preliminary experiments with varieties of Apple, Pear, and Cherry were carried out in a greenhouse, and did not prove very satisfactory; but it must be borne in mind that the trees were very small and did not grow under natural conditions.

The succeeding chapters deal fully with experiments on trees growing out-of-doors. We will give a brief outline of the experiments and the results obtained.

The following experiments (iv.) were made on the Apple known as "Cellini." (1) Cross-fertilisation was prevented by means of a gauze net; the stigmas were left untouched. Seventy-five per cent. of the fruits were seedless, 20 per cent. contained imperfectly developed seeds and 5 per cent. had perfect seeds. (2) All stigmas were painted with the liquid. Ninety-six per cent. of the fruits proved to be seedless. (3) The flowers were cross-fertilised, with the result that practically all fruits contained seeds. (4) On three branches fertilisation of the flowers was prevented. Only one seedless fruit was harvested. On the branches treated the flowers quickly faded and no fruits developed. All the other branches bore seed-containing fruits. This experiment shows that if the flowers of only a part of a tree are sterilised, they are unable to produce seedless fruits for the reason that they are outgrown by the others. These experiments also show that "virgin-fertility" exists naturally, and they tend to prove what the American observer, Waite, correctly said, that the property is co-existent with self-fertility.

A series of analogous experiments were carried out with the Pear Beurré Clairgeau.

The first experiment, which was similar to the first made with Cellini Apple resulted in the production of 100 per cent. seedless fruits. The second experiment gave a crop of 85 per cent. seedless fruits, and so on. From the experiments with Beurré Clairgeau it was also shown that parthenocarp and self-fertility are identical qualities.

In endeavouring to ascertain the effects obtainable in other varieties the following Apples were subjected to experiment: Charlamowsky, Winter Golden Pearmain, Baumann's Reinette, and Kaiser Alexander. Only Charlamowsky and Winter Golden Pearmain, however, showed any tendency towards parthenocarp.

In addition, other varieties of Pears were made the subjects of experiment. Gute Louise von Avranches had 99 flowers treated, and 92 fruits were obtained, of which 87.3 per cent. of the fruits were seedless.

The author summarises his experiments by relating the following results:—

1. Soon after flowering the following experimental trees dropped their fruits:—
Apples: Baumann's Reinette and Kaiser Alexander. *Pears*: Bergamotte Esperen, William's Bon Chrétien.

2. Inclination to parthenocarp present in these varieties, but the fruits fall off on attaining the size of a nut. *Pears*: Pastorenbirne, Zepherine Grégoire.

3. The seedless fruits remain singularly small. *Apple*: Winter Golden Pearmain.

4. The seedless fruits attained normal size, though differing in shape from them. *Apples*: Charlamowsky, Cellini. *Pears*: Clairgeau, Gute Louise von Avranches, Holzfarbige Butterbirne, Nina, König Karls von Württemberg, Abbé Fêter (in which variety cross-fertilization only was prevented).

Dr. Ewert considers in the concluding chapters the practical value of growing seedless fruits. He states that, though it is perfectly true that seedless Apples and Pears can be raised of the same size and quality as the others, yet the hard, horny cores, especially in Apples, still remain. He expresses the hope, however, that since the core exists only for the protection of the seeds, the disappearance of the seeds will eventually be followed by the disappearance of the core, in accordance with the well-known law of nature that organs or parts which have been rendered superfluous will in time vanish. That this is quite possible is shown by the case of the seedless currant, where the hard seed coats are entirely changed into soft tissue.

Dr. Ewert is of the opinion that a perfectly seedless and coreless Pear would fetch a sufficiently high price in the market to compensate for its expensive and artificial culture.

He suggests that the discovery of parthenocarp is also worthy of consideration from another point of view. He refers to the frequent disappointing results of the fruit crop (even though the trees may have had plenty of flowers) caused, perhaps, by the absence of bees at the time of flowering, or by unsuitable conditions of the weather. In brief, it is advisable to plant such trees that are capable of producing seedless fruits, for these, the author states, will furnish fruit even when, for some reason or other, cross-fertilization has not taken place.

* Die Parthenocarpie oder Jungfernerfruchtbarkeit der Obstbäume, by Dr. Richard Ewert. Published by Messrs. Paul Parey, Berlin (1907).

Supplement to the "Gardeners' Chronicle."



From a photograph by E. J. Wallis.

VIEW IN THE CENTRE OF THE PALM HOUSE AT KEW,
SHOWING THE SLATE-ENCLOSED BEDS.

Temple Press Ltd., Printers, 7-15, Rosebery Avenue, London, E.C.

OUR SUPPLEMENTARY ILLUSTRATION represents a view in the Palm House at Kew, and shows some of the centre, slate-enclosed beds that are furnished with a variety of tropical plants, chiefly of ornamental-leaved species. The photograph was taken near the middle of the glasshouse, above which point the glass roof is 66 feet distant, enabling tall Palms to show their full beauty. The staircase seen in the background of the picture leads to a gallery extending around the centre portion of the structure, and from this platform can be obtained an excellent view of the tops of tall Palms, Bamboos, *Dracænas*, *Pandanus*, and similar plants, intermingled with climbers, so that the scene suggests the looking down upon some tropical forest. The gratings cover a part of the hot-water system, and they form a considerable part of the floor all over the house. These gratings—and the remaining parts of the walks are flooded several times each day, the water running down amongst the pipes, to be evaporated again, thus producing a sufficiency of atmospheric moisture. The Palm House is really a huge stove, and it requires the services of two men as stokers continually, the boilers being situated beneath the structure. The expanse of glass is so considerable that on cold days the temperature on the windward side of the building is often several degrees lower than on the opposite side. Nearly four miles of 4-inch piping are carried over the entire ground area of the building. Originally the architect arranged a series of underground flues communicating with a smoke-tower, an Ivy-covered structure that appears like a water-tower, situated at about 500 feet distant from the Palm House. This arrangement has been superseded by flues from the furnaces carried through the building and above the roof.

FLOWERS IN SEASON.—From Mr. JOHN CROOK, Forde Abbey Gardens, Chard, we have received a box of a very fine strain of *Polyanthus* in bright and varied colours. Mr. CROOK writes: "I have been working for the improvement of this strain of *Polyanthus* for many years. I displayed a large non-competitive exhibit of these flowers at the National Auricula Society's Show on April 30, when they were much admired. I am leaving Forde Abbey in the autumn, after which I intend to grow these plants, and sell the seeds of same, &c."

THE ROYAL GARDENERS' ORPHAN FUND: ANNUAL FESTIVAL DINNER.—We desire to remind our readers that the annual festival dinner of this fund will take place on Thursday next, the 23rd inst., at De Keyser's Royal Hotel. The Right Honourable the LORD MAYOR (Sir WILLIAM P. TRELOAR), will preside. Subscriptions or donations will be gladly received by the following gentlemen, who have kindly consented to act as stewards on this occasion:—W. Alderson, Hersham Road, Walton-on-Thames; James T. Anderson, 135, Commercial Street, E.; John Assbee, Market Office, Covent Garden, W.C.; W. Y. Baker, Thames Bank Iron Co., Upper Ground Street, S.E.; George H. Barr, 11, 12, 13, King Street, W.C.; W. Bates, Cross Deep, Twickenham; Harry Bird, C.C., The Drive, Chingford; William Bull, 536, King's Road, Chelsea, S.W.; G. Bunyard, V.M.H., The Royal Nurseries, Maidstone; G. Caselton, Garden Superintendent, Crystal Palace, S.E.; W. H. Cooke, Kingston Hall Gardens, Derby; Geo. H. Cuthbert, The Nurseries, Southgate, N.; W. H. Cutbush, The Nurseries, Barnet, Herts; C. Dixon, Holland House Gardens, Kensington, W.; W. A. Garaway, Durdham Down Nurseries, Clifton, Bristol; W. Howe, Park Hill Gardens, Streatham Common, S.W.; D. Ingamells, 27, Catherine Street, Covent Garden, W.C.; James L. Kinnell, 65A, Southwark Street, S.E.; John Lyne, Fox-

bury Gardens, Chislehurst; H. B. May, Dyson's Lane Nursery, Upper Edmonton; J. F. McLeod, Dover House Gardens, Roehampton, S.W.; J. W. Moorman, Superintendent, Victoria Park, E.; T. A. Morris, 67-68, Cheapside, E.C.; Whitpain Nutting, 106, Southwark Street, S.E.; R. Hooper Pearson, *Gardeners' Chronicle* office and 40, Brocklebank Road, Wandsworth, S.W.; W. Poupart, Marsh Farm, Twickenham; W. Roupell, Harvey Lodge, Roupell Park, S.W.; G. Reynolds, Gunnersbury Park Gardens, Acton, W.; T. W. Sanders, 124, Embleton Road, Lewisham, S.E.; Edward Sherwood, 152, Houndsditch, E.; David W. Thomson, 113, George Street, Edinburgh; W. P. Thomson, 25, Bollo Lane, Chiswick, W.; Harry J. Veitch, V.M.H., Royal Exotic Nursery, Chelsea, S.W.; P. C. M. Veitch, J. P., High Street, Exeter; J. H. Witty, St. James's Villa, Swain's Lane, Highgate, N.; and the secretary, Mr. Brian Wynne, 30, Wellington Street, W.C. Of all appeals that are made to the benevolence of gardeners and others interested in horticulture, none should be more effective than this one which has for its object the care and sustenance of necessitous children whose fathers were gardeners, and who, through early decease or other reasonable causes, have left no provision for their children.

KEW GUILD DINNER.—We are requested to remind our readers who are Old Kewites that the annual dinner will take place at the Holborn Restaurant on the 27th inst., at 7.30 p.m., and that the secretary, Mr. W. N. WINN, would be glad to hear before the 20th from all who intend to be present. Mr. GEORGE MASSEE will preside, and amongst colonial and Indian members expected to be present are Messrs. J. ANDERSON (Gold Coast), S. ARDEN (Singapore), K. G. BURBRIDGE (Gold Coast), J. BUKTT-DAVY (Pretoria), J. M. PURVES (British Central Africa), T. R. SIM (Natal), and J. STOCKS (Portuguese East Africa).

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The monthly committee meeting was held at the Royal Horticultural Hall, Vincent Square, Westminster, on Monday evening last, Mr. CHARLES H. CURTIS presiding. Nine new members were elected and one nominated. The amount paid for sickness since the last meeting was £52. A grant of £5 from the Benevolent Fund was made to the widow of a late member, who died after a long illness.

AGRICULTURAL EDUCATION.—The Departmental Committee, of which Lord REAY is chairman, held meetings on the 7th, 8th, and 9th inst. Mr. A. D. HALL, Director of the Rothamsted Experimental Station, Harpenden, Sir C. T. D. ACLAND, Bart. (nominated by the Bath and West and Southern Counties Society), and representatives of the Midland Agricultural and Dairy College, Kingston, Derby, the Agricultural and Horticultural College, Uckfield, the British Dairy Institute, Reading and Leeds University, attended and gave evidence.

THE LORD MAYOR'S CRIPPLES' FUND.—A publication called *Crutches to Help Cripple Children* is to be issued on June 5th, on behalf of the Lord Mayor's Cripples' Fund. Sir DOUGLAS STRAIGHT is acting as Hon. Editor for the Literary Section, and Sir JAMES D. LINTON, R.I., H.R.M.S., is responsible for the Art Section. We are informed by Sir WILLIAM P. TRELOAR that a large number of well-known authors and artists have kindly given their services, and the result will be a literary and art production in every way unique. The entire profits on this book are to be devoted to the fund he is raising for the provision of homes to treat the tuberculous cripples of the poor, and for which £60,000 is required. The publishers are Messrs. BEMROSE & SONS, LTD.

DESTRUCTIVE INSECTS AND PESTS BILL.—This Bill, which has been already referred to in these columns, and which will give increased powers to the Board of Agriculture in the matter of preventing the spread of insect pests and fungus diseases, was read for the third time in the House of Lords on Monday last, May 13.

THE SEASON OF LILAC.—The Lilacs are now at their best, and in most districts the bushes are blooming with unusual freedom. From several quarters we are informed that there was never a better display than at the present time.

MAGNEY OR SISAL HEMP.—The cultivation of Magney in the Philippine Islands is, as we learn from the *Tropical Agriculturist*, at the present time attracting widespread attention. In those provinces from which Magney has been exported for a number of years, larger areas are now being planted. In other sections where this plant has been either unknown or unnoticed, it is now being introduced. In order to supply the many requests for information in regard to the essential details asked for in reference to its cultivation, the Philippine Bureau of Agriculture supply, in as brief and simple form as possible, a circular printed in English, Spanish, and other languages. It takes the form of 16 questions and answers.

HOLLY LODGE, HIGHGATE.—In the issue of *The Times*, published on the 11th inst., a correspondent of that paper announced that: "It has been decided to dispose of the Holly Lodge estate at Highgate, which was for many years the summer home of the late Lady BURBERRY-COURTIS. The estate, which extends to over 50 acres, is to come into the market during the coming season."

LANDSCAPE GARDENING.—Mr. B. T. BATS-FORD will publish in a few days a new and enlarged edition of Mr. THOMAS H. MAWSON'S *The Art and Craft of Garden Making*, the last edition of which was issued in 1901. It is announced that the present edition will contain numerous fresh illustrations and schemes of gardens.

MAY-FLOWERING TULIPS.—An excellent display of May-flowering Tulips is now in bloom at our Surbiton nurseries, write Messrs. BARR & SONS. The collection covers some acres of ground, and we have rarely, if ever, had such a grand show.

COCOANUT PLANTING.—This is a remunerative and safe investment in the tropics, better even, perhaps, than that in rubber, there being an enormous demand for cocoanut oil, copra, and desiccated cocoanut in Europe and America, which cannot be met. The literature on the subject is not extensive; but there is one book, the *Cocoanut Planters' Manual*, by JOHN FERGUSON, price 4 rupees, published at the office of the *Tropical Agriculturist*, Colombo, Ceylon, which affords all that the planter requires to know about cultural and cognate matters.

THE IMPERIAL BIOLOGICAL INSTITUTE AT DAHLEM.—Professor Dr. WORTMANN, Director of the Royal College for Fruit Culture and General Horticulture, Geisenheim, has been appointed director of the Biological department at Dahlem in the place of the late Privy Councillor ADERHOLD.

THE OLD BOTANICAL GARDEN, BERLIN.—This area of 58,000 quadrate metres has been acquired by the city authorities for the sum of 2,000,000 marks, and was taken over on April 1 last.

SMOKE AND FROST-PROOF CONIFERS.—In the various Berlin parks, a number of species of Conifers have been under the observation of Hrn. FINTELMANN, Royal Horticultural Director for a number of years. Of those planted in 1871, many have been destroyed by the products of combustion in the factories erected since that date, and in the locomotives of the Stettin railway, or they have been so reduced in vigour as to have been killed in hard winters. Those which have best withstood these unfavourable conditions are *Abies numidica*, *A. balsamea*, and it is particularly worthy of notice that a plant of *Araucaria imbricata*, left out of doors during the severe winter of the present year, was quite unharmed. More observations, by several of the landscape gardeners present at a meeting of the Society of German Landscapists on April 15 last, will be communicated at future meetings of the society.

DRESDEN.—The International Horticultural Exhibition at Dresden, writes a correspondent, "was an exhibition showing all the art the horticulturist can put into his work. The various competitions, as, for instance, decorated church altars, decorated ladies' boudoirs, gave plenty of opportunity for the genuine artist to display his talents. An idealistic imitation of a forest with tropical plants and Orchids as growing in their natural habitat was even better than one would expect in a country where things are done so thoroughly as in Germany. This forest occupied a space of about 3,000 square feet, and was made to look larger by the addition of a large and specially painted picture to form a perspective in the distance. The exhibition ground was exactly suited for its purpose. A large proportion of the plant exhibits were representative of Dresden's specialities—Azaleas, Rhododendrons, Camellias, &c.—but excepting these plants one saw no superiority over those of our own cultivation. There were only two English firms represented, Messrs. HUGH LOW & Co., who were awarded a special prize for an exhibit of perpetual-flowering Carnations, amongst which such new varieties as White Perfection (undoubtedly the best of all whites), Britannia (the Gold Medal scarlet), and Mrs. Burnett (salmon-pink) figured prominently. Messrs. CHARLES-WORTH & Co., of Bradford, Yorkshire, put up an excellent group of Orchids. The exhibition was opened on Saturday, May 4, by the King of Saxony, but the attendance on the first day was far behind that at a similar show in this country, although of course the crowd on the Sunday was considerable."

BORING PESTS ON FRUIT TREES.—In many parts of the country fruit-trees may be noted in which here and there branches have died without apparent cause. A close examination would show small holes in these dead or dying stems and branches, which form the entrances of those treacherous pests, the various species of the genus *Scolytus* and *Bostrichus*. If the rind of the injured branches, &c., be removed, numerous galleries or borings will be found just beneath the rind and in the sapwood, and a number of white grubs in them; and, should the search be made in the months of May, June, and July, fully developed insects. From the entrance hole in the rind of the youngest sapwood a simple gallery is formed by most of the species of *Scolytus* and from this on both sides the so-called larva-borings extend. The female lays her eggs at the sides of the borings to the number of 20, and the footless larvæ increase the width of the borings, and appear in the following year between April and July as perfect insects on the surface in search of a place in which to settle, where the circle of development begins anew. The insects attack healthy as also unhealthy trees. The following three species are common at times, viz., *Scolytus*

pruni, which chiefly infests the sapwood of Plums, Apples, Pears, and Cherries, is black, the feelers and legs brownish red, and the wing cases brown. The hinder part is raised slanting-wise, and appears as if shortened. The length of the creature is about 3.5mm. *S. rugulosus* is about half as large, and is less shining; the colour in general is black, the points of the wing cases being of a lighter tint. It is found on all kinds of fruit-trees.—*Bostrichus dispar*: The size of the sexes differs, the female being 3.5 mm., and the male 2 mm. long; colour, pitch-brown and covered with fine hairs. The males are always the fewer in number. Contrary to the before-mentioned species, it is the female which perforates the stem, and the progeny which are raised from the eggs that she lays in the hole that carry on the borings lengthwise of the stem. The first thing to do for a successful fight with these insects is to remove the whole of the infested and sickly trees and branches, and remains

MacDougal, Director.—*Hybridisation of Wild Plants* by D. T. MacDougal.—U.S. Department of Agriculture. *Leguminous Crops for Green Manuring*, by C. V. Piper.—University of California. Agricultural Experiment Station. *Report of the Plant Pathologist*, to July 1, 1906. By Ralph E. Smith. A chronicle of much useful work.—*The House Beautiful*. A Chicago magazine with many hints upon house decoration, and a section devoted to gardening.—*Redia*. Vol. IV. Fascicolo I. of an entomological magazine published in Florence.—*The Botanical Magazine*, Tokyo, February, among other interesting articles contains a paper on Taiwan and its affinity to other genera.—*Agricultural News* (Barrados), April 6. Full of useful notes on tropical and other crops.—*Bulletin of the American Association of Park Superintendents*. The experiences of this association are worth notice by similar officials in other districts.—*London Botanic Gardens*. By Pierre Perrédès. This contains illustrated accounts of the history of Kew, the R.H.S. Gardens, the Botanic Society's Gardens, and the Chelsea Physic Gardens.

FRUIT CROPS AND FROST.

So serious have been the losses sustained by fruit-growers in the Vale of Evesham in some



FIG. 133.—PROTECTION FROM FROST.
(Smudge-pots in an Evesham Orchard.)

of trees, as it is precisely these that offer points from which healthy trees can be attacked. It further helps matters if the soil be afforded a dressing of suitable manure, more particularly phosphoric acid, lime, and potash, for the purpose of imparting vigour to the trees, as neglected trees are usually the first to be attacked. On the appearance of *Scolytus pruni* in the spring manure water should be applied, so as to a certain extent smother the larvæ in the abounding sap. Trees that are greatly infested should in early spring be felled, cut up into small pieces, and burned, so as to prevent any further increase in the woodstack or depot. Further, all slightly attacked trees should be dressed with freshly-slaked lime-wash, and this dressing should be repeated if traces of the insects be visible. It is only by a timely carrying-out of the above means that the fruit cultivator can avert great injury to his trees.

Publications Received.—*Annual Report of the Agricultural Experiment Stations of the Louisiana State University*. By W. R. Dodson, Director.—From the U.S. Department of Agriculture.—*Method of Eradicating Johnson Grass*, by J. S. Cates and W. J. Spillman.—*Report of the Department of Botanical Research*, Washington, by D. T.

past seasons by reason of the destruction of crops by the late spring frosts, that attempts are now being made to accomplish the apparently impossible task of abolishing the frosts in the plantations. Smother fires of rubbish or other material have been tried, but without much success, and experiments have also been made with preparations known as foyers, as used in the grape-growing districts of France, but these proved to be too expensive for commercial use. A large measure of success has, however, been achieved with oil-pots, or smudge-pots, as they are sometimes called. These are tin cans, 9in. high, tapering upwards, with two rows of holes near the top; each pot holds a gallon of creosote, to which some naphthalene salts and a little water are added. The pots containing the creosote, with a whisp of hay in the mouth to aid ignition, are placed about the plantations at the rate of 40 to the acre; stakes or some other indicators are fixed at the ends of the rows of pots, so that they may be easily located in the dark. Electric alarm thermometers are fixed up in the plantations, which ring bells in the foremen's houses when the mercury falls to 32° Fahr. The pots are afterwards lighted by means of a torch, and

they will burn without recharging for about three hours, which is long enough in the case of ordinary spring frosts. It is usually found necessary to light them about half-past two or three o'clock in the morning. They have a two-fold effect. Not only do they raise the temperature very considerably, but they create a pall of dense smoke, which hangs like a heavy blanket some 8 or 12 feet from the ground, and envelops the trees. The principal object of the smoke is to prevent the damaging of the embryo fruits by the frost, rather than to keep the sun's rays from completing any damage already effected. Experiments were tried last year on a somewhat large scale by Mr. Martin, at Toddington, and by Mr. Geoffrey Hooper, of the Croft Fruit Farm, Pershore, and the results were very satisfactory. Allowing five shillings per acre for labour, the cost should not exceed 20s. per acre per night. The illustration is from a photograph taken by Mr. Hooper's kind permission in his plantations at Pershore. W.

exterior of the mansion are some fine specimens of *Magnolia grandiflora*. These are crowded with flower-buds.

In front of the windows are several large flower-beds, which at the time of our visit early in the present month were filled with bulbous flowers. Some very fine pyramidal Yews are planted at corners where the paths intersect, and a number of choice statues in marble are scattered about these flower-beds. There are also several handsome vases which are furnished throughout the year was seasonable subjects. Tulips, Hyacinths, Anemones, with edgings of various *Ericas* adorned these beds. One was filled with red, white, and blue-coloured Hyacinths, and intermingled are later-flowering Tulips, that were just showing their flower-buds. Another was gay with the yellow Tulip *Chrysolora*, around which were scarlet Anemones, edged with Golden Yews trained very dwarf, and an outer band of *Erica mediterranea*. Bulbs have been planted in great numbers, and many are natural-

is an object of great beauty. In summer the waters are bright with Water-Lilies, including the beautiful *Nymphæa atro-purpurea* which Lord Hillingdon showed in such fine condition at the meeting of the Royal Horticultural Society on July 31, 1906, and a flower of which formed the subject of our supplementary illustration in the issue for February 16, 1907. The whole of this water-garden is surrounded with a dwarf wall, surmounted by an appropriate design in stone work, and facing the pool is a luxurious summer-house with a facade of copper ornamented in bas-relief with the Hillingdon arms and appropriate scroll work. A large stone figure of Neptune reclining occupies the middle of the lake. Leaving the water-garden on the left, a new part of the garden is entered, and this is carpeted with fine turf, in which are cut several large beds. These are newly planted, and all the occupants are in vigorous growth. One has an assortment of arborescent Ivies, amongst which are planted Spanish Iris; another is filled

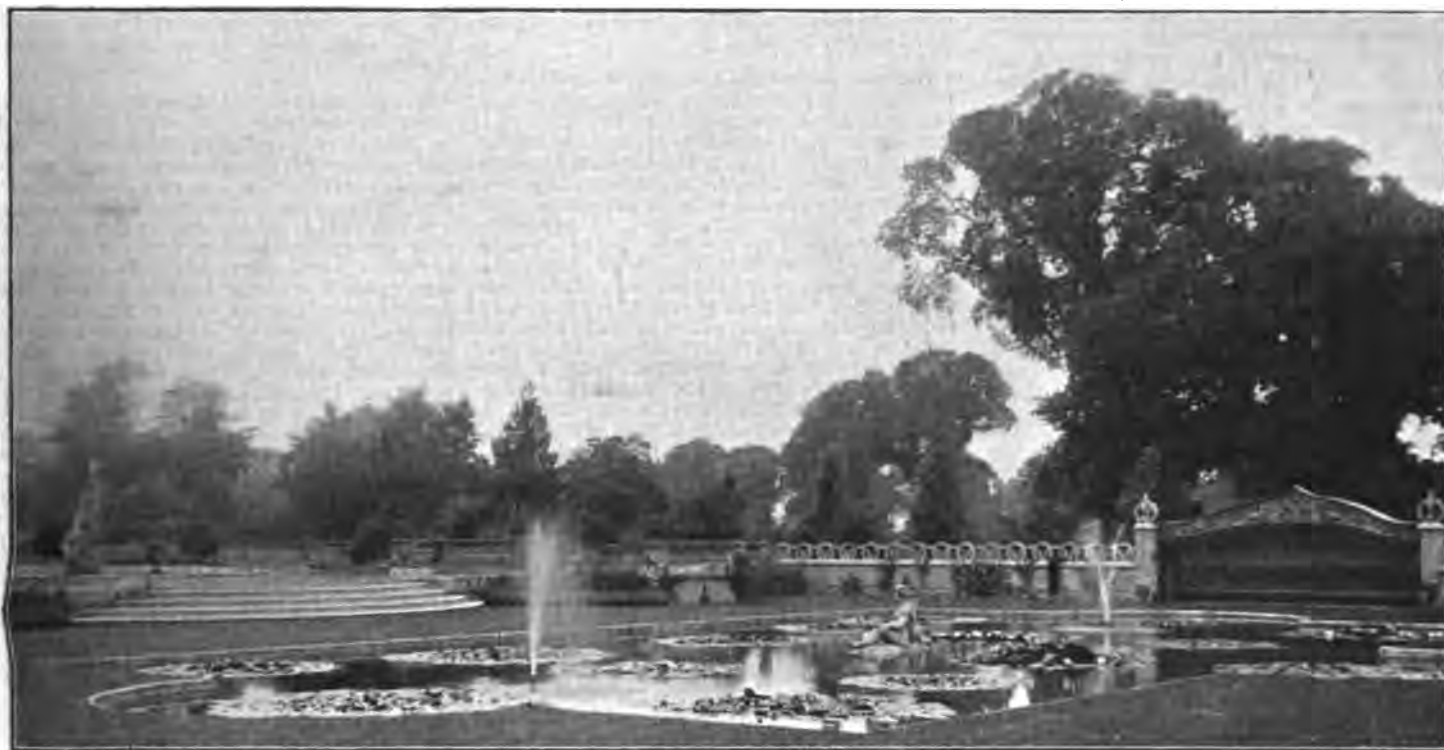


FIG. 134.—A WATER-GARDEN AT HILLINGDON COURT, UXBRIDGE, THE RESIDENCE OF LORD HILLINGDON.

HILLINGDON COURT, MIDDLESEX.

THERE are many beautiful spots in the county of Middlesex, especially around the vicinity of Harrow, and between this town and the important borough of Uxbridge is situated Hillingdon Court, the country seat of Lord Hillingdon.

It is best reached from town by the Metropolitan Railway to Uxbridge, and across a public path through a picturesque park. Hillingdon Court is a comparatively modern edifice; it was built by the grandfather of the present owner, but the beautiful gardens and grounds as they now exist have been formed by the grandson, whose gardener, Mr. A. R. Allan, has carried out the work with admirable skill. The gardens are surrounded by park land that stretches almost as far as Harrow, and each year some new feature is added to the gardens and grounds, the necessary land being readily available. Indeed, the place may be said to be a garden in the making, and will undoubtedly rank in the future with the finest in the county. The residence is a square-built structure with a wing of considerable size attached, and to this latter part a big conservatory. Trained up the

used in the grass and beneath trees. Looking in the direction of Harrow is seen a broad terrace with fountains and a water-garden (fig. 134). One first encounters a broad expanse of grass, in which has been cut a large tri-lobate shaped bed, with the apex towards the mansion. This has an edging of box, and the base of the leaf is planted with golden tree Ivies. The whole is designed on a bold scale, and was filled with Tulips, in the centre *Chrysolora*, and the outer bays with Cottage Maid and the red Prince of Austria. A little beyond is a large water-basin with a fountain in its centre, and around are a number of smaller flower-beds. The whole of this grass, with its enclosed beds and fountain, is edged with a stone kerb, and against the relief of the admirably-kept gravel walks the design stands prominent.

Still further in the direction of Harrow, which is seen through a vista of trees in the distance, a flight of large circular stone steps leads to another broad expanse, which encloses a water-garden (fig. 134). The basin measures about 100 feet in its broadest part, and is about half this distance in width. The front from the steps is not broken, but on the other three sides half-circular bays are included, and with fountains in the centre and at either wing, the whole

with the golden *Cupressus macrocarpa*, and against a background of Scots Fir is one filled with Azaleas, and edged with *Ericas*. Hereabouts in the turf are innumerable Daffodils, Tulips, and other spring flowers, appearing in their natural setting more beautiful even than those in the symmetrical flower-beds. A weeping Elm, *Narcissus Horsfieldii* about its base, is deserving of mention.

Walks have been formed in the grass by close mowing, and some lead past shrubberies, which are filled with the choicest subjects. The shrubs at Hillingdon Court are a fine show, and many thousands of all kinds have been planted by Mr. Allan during his term of office, and he has made the most of the opportunities afforded by the natural features of the place. Wherever a band of trees exist, the shrubberies and walks have been so designed that the trees serve either as a background, to break the continuity and formality, or terminate the planting. A newly-planted shrubbery was gay with *Cytisus præcox*, *Pyrus Malus floribunda*, Lilacs, Rosemary, *Exocorda grandiflora*, *Andromeda floribunda*, *Cerasus pseudo-cerasus*, *Ericas*, *Phillyreas*, double-flowered Gorse, and many other subjects in flower. At the back of this

shrubbery is a long walk, with herbaceous borders, a part of these is planted with blue flowering plants, and the other part with those having red flowers.

This spot is the present limit of the gardens proper, and meets the park which stretches away for 200 acres in the direction of Harrow-on-the-Hill. Roses on pillars, and others standard and bush-trained, with Honeysuckles at intervals, are planted in profusion along this walk, which must be a very attractive feature when the whole of the plants are in flower. A path beneath a cluster of Pine trees that is carpeted with Irises leads to an open expanse of lawn bespangled with hosts of Daffodils and Tulips. A large Rose-bed, planted with 500 bulbs of Narcissus Emperor, was a grand scene. Roses are planted abundantly in these gardens—in large beds by themselves, by walks, in borders and shrubberies, and they have also a separate quarter to themselves, the site of an old sunken Dutch garden. The big beds have tall pillar plants in their centres, and there are also arches adorned with climbing varieties.

A small Pinetum has been newly formed, and planted with *Pinus tuberculata*, *P. pinea*, *P. fremontiana*, *P. muricata* (syn. *Murayana*), *P. sabiniana*, *P. ayacahuite*, *P. parviflora*, *P. conorta*, *P. muricata*, *P. cembra*, *P. excelsa*, *P. flexilis*, *P. pyrenaica*, and *P. jeffreyi*. There are also some young plants of the golden Cedar.

A Yew-enclosed garden, with a sunken tennis lawn, having bright patches of bulbous flowers at either corner, and a special quarter planted for autumnal tints are other interesting features. Almost everywhere there are bright patches of bulbous flowers, and seen on a glorious spring day they were doubly enchanting. Every quarter of the garden is maintained in an admirable manner; the tidy aspect of the walks, verges, lawns, flower-beds, and borders being excellent. The glass-houses, fruit, and kitchen gardens are maintained in the same state of efficiency. The gardener is a son of Mr. W. Allan, who has been head gardener at Gunton Park for so many years.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

GARDENERS IN NEW ZEALAND.—The note, p. 308, on emigration to New Zealand, reminded me of a letter, dated January 29, 1907, received from Mr. W. Jones, Exeter Nurseries, Papanui Road, Christchurch. I enclose a copy of a portion of his letter which has reference to the prospects for gardeners in New Zealand, which is in direct opposition to the statement of Mr. Harding published last week. "Horticulture is going ahead in New Zealand by leaps and bounds. Our greatest trouble is to get competent gardeners; these are too scarce unfortunately. Those that come out from England, with very few exceptions, are poor hands." *Thomas Peed.*

TO PRUNE OR NOT TO PRUNE.—Mr. J. Simpson, on p. 304, raises four or five different issues, and in his note I think he has failed to do justice to his reputation as a cultivator and observer. I have always been an advocate of judicious pruning of fruit trees; and the trees he saw in the County Experimental Garden, Droitwich, at the beginning of 1900, had all, with the exception of 37, been annually pruned. On that occasion Mr. Simpson very kindly expressed his approval of the fruitful condition of the trees generally; and well do I remember the temptation I then and subsequently had to discontinue pruning all these trees. But glad am I that I resisted the desire to secure the maximum amount of fruits from these trees when young. Most of them were planted in 1896, and are now admired by all who see them, and I am sorry that Mr. Simpson did not call when he was in this locality recently, for had he then seen them it is very probable certain sentences in his note would not have been written. The 37 unpruned trees above mentioned

consist of Apples, Pears, Plums and Red Currants, and in no year or instance has the fruit from these trees been so good in quality as that from pruned trees grown in other respects under equal conditions. The results quoted in the *Gardeners' Chronicle*, p. 249, are as reliable as results from another source, even though they were made, noted, corrected and published by Mr. Simpson himself. With regard to the general practice or non-practice of pruning fruit trees in Worcestershire, I have only to say that the amount of pruning performed in this county by growers annually increases; to suggest that the facts are otherwise is an injustice to the intelligence of the large fruit-growers and market-gardeners of the county, who, as cultivators, are surpassed by none in the country. Within about 2,000 yards of my writing-table are two separate fruit orchards, each for many years managed by an intelligent man. Each of these managers annually endeavours to approximate his pruning to the standard practised in the Experimental Gardens, and I believe that both farms are profitable. As showing whether pruning is common in the locality or not, I may say that the applications made to these Experimental Gardens for instruction in pruning are more than we can attend to. *James Udall, Experimental Garden, Droitwich.*

HARDINESS OF CALLA ÆTHIOPIA.—Recently when looking over the very interesting gardens and grounds at Byram Park in this county, I was somewhat surprised to see some strong growing plants of *Calla æthiopica* on the margin of the lake. Mr. Taylor, the gardener, informed me they were planted when in a dormant condition last autumn. Some few years ago when preparing baskets for the reception of some of the choicer kinds of Water Lilies for planting in this lake, a quantity of old potting soil in which these Callas had been grown was used. The following season a stout plant of *Calla* came up amongst one of the Water Lilies, and in due time produced a good-sized flower. It was this fact which induced Mr. Taylor to make a planting of this *Calla* in the open. They are planted in about 3 feet depth of water: the lake has, during the past winter, been frozen over. *Henry J. Clayton, Wharfe Bank Cottage, Ulleskelf, near York.*

VENTILATION AT THE TEMPLE SHOW.—The Temple show being near at hand, something should surely be done to ensure better ventilation in the exhibition tents than there has been in previous years. The heat is generally insufferable, and quite spoils the pleasure from an onlooker's point of view. Perhaps the responsible authorities have already resolved to do something in this matter? *G. Clark, May 13, 1907.*

ANDRENA FULVA.—I hope *A. A. W.* will not destroy this valuable insect, for this would be a foolish and a cruel thing to do. In bleak spring-time when hive-bees are generally inactive, I find this and other solitary bees usefully employed in "setting" my Apple blossoms. Other varieties collect the injurious larvae of moths and stuff them in a numbed state into their cells to serve as food for their young instead of bee bread. These solitary bees are friends of the fruit-grower, and they need protection as much as birds. The application of a broom and a roller will soon remove their little hillocks. *W. R., Roupell Park, S.W.*

FORCING BY MEANS OF WATER.—I have practised, for many years, similar methods to those mentioned by *R. P. B.* on p. 177, and have found them valuable for anticipating the season of many hardy flowering plants. For the past five years I have employed a modification of this plan for sending flowers to London during the season. The journey is long, and by the time the boxes are delivered and unpacked the flowers have been cut nearly 24 hours. Under these conditions flowers which are fully or nearly expanded when despatched have but a brief period of usefulness in London. At first there were failures, but the successes were encouraging, and now the bulk of the flowers sent are cut in the bud stage. In some cases the flowers after expansion are slightly smaller than those which open on the plants, but they are fresher and last longer. Rhododendrons, which *R. P. B.* seems to have failed with, are examples. With this genus the water should be only just chilled. By this method many of the beautiful Sikkim species and hybrids

can be induced to expand trusses of flowers which, if left on the bushes, would be cut by frosts. The Ghent Azaleas are amenable to the same treatment, but *A. mollis* is uncertain. Branches of out-door Camellias are also sent; these and the Rhododendrons are cut as the leading buds show signs of colour. Violets, especially the single varieties, would be useless if sent fully open; the "singles" are gathered when in bud, and the doubles when the flowers are half open. Many of the Poppies—*Papaver orientale*, the Shirley Poppies, and hybrids of *P. nudicaule*—can be safely sent if they are cut just as the calyx shows signs of bursting, and the stalks are at once placed in water. If cut as the spathe begins to unfold, White Arums will develop perfectly; and such Amaryllids as *Crinum*, *Clivia*, and *Hippeastrum*, present no packing difficulties, and expand freely if the spikes are cut as the petals of the leading flowers show signs of separating. The flowers keep fresher if their stems are placed in water for an hour or so before they are packed, and on arrival any that flag should be immersed in chilled water for a short time. The water in the vases must be changed daily, the stalks of the flowers wiped dry, and a thin slice cut off the end before replacing them. The Amaryllids and Poppies travel best if packed in clean, damp moss. *A. C. Bartlett, Pencarrow Gardens, Cornwall.*

STRAWBERRY ROYAL SOVEREIGN.—It is with some surprise that I read *F. M.'s* remarks, p. 304, on this valuable Strawberry. As a market fruit it is recognised as one of the best varieties in existence, not only for productiveness, but also for quality and flavour, and it is also one of the best for sending in transit, as it does not readily become bruised. It is not quite equal in flavour to British Queen and some others, but I doubt if there is another Strawberry grown which, judged from all points, could excel Royal Sovereign. There are some sorts mentioned by *F. M.* with which I am not acquainted, but the others I have known for years, and I should certainly give first place to Royal Sovereign on all points, except that the variety British Queen and some others are much superior in flavour. Royal Sovereign received a First-Class Certificate from the Fruit Committee of the Royal Horticultural Society in 1892, and I understand that its flavour was one of its greatest recommendations for that honour. Royal Sovereign has been planted so largely that other varieties have been neglected, with the result that supplies of this fall off earlier in the season than formerly. I remember when the President was first introduced; it held for some years about the same position as Royal Sovereign does at the present time, but its great fault was that when fully ripe, the fruit would not stand transit well. Of all the older varieties, Kitley's Goliath would be most appreciated if we could get it as it was grown in Sussex 35 years ago. Another which deserves mention is Cox's Hybrid (or Elton Pine), a very late, and one of the finest Strawberries for preserving purposes. It might prove both interesting and instructive to have a discussion on the value of the various sorts of Strawberries. Much has been written in favour of Vicomtesse Hericart de Thiery, one of the first to produce a late autumn crop of fruit from plants which had been forced, and afterwards planted out. This autumn-cropping was the only merit I ever recognised in it. There are many varieties which may be suitable for cultivation in private gardens, but for market purposes a Strawberry should possess the three qualities of productiveness, good flavour, and substance, the latter quality to enable it to travel well. *A. H.*

—*F. M.'s* criticisms on page 304 of the large size of the fruits of Royal Sovereign Strawberry, shown at a recent meeting at Vincent Square, are just from his point of view, but the production of such very large fruits is not at all common even in this variety, and of all the other kinds he mentions not one can equal Royal Sovereign for reliability, fruitfulness, and general amenability to culture, either under glass or outdoors. One reads with astonishment mention of such varieties as *Jas. Veitch*, *La Grosse Sucrie*, *Duke of Edinburgh*, and others as excelling Royal Sovereign in every quality but size. Many of these varieties generally exceed Royal Sovereign in the production of big fruits, but they are utterly flavourless. The exquisite flavour of British Queen or Dr. Hogg is certainly not found in Royal Sovereign, but it

can be relied upon to produce fine crops of fruit, whereas neither of those named by *F. M.* can be so relied upon. How very disappointing is the failure by raisers of Strawberries to combine the productive excellencies of Royal Sovereign with the fine flavour of either of the two varieties I have named. It was supposed to exist in Veitch's Perfection, in Allan's Lord Suffield, and in Laxton's The Laxton—all certainly high flavoured fruits, but disappointment has followed in every case, and it does seem as if high flavour was a product of physical weakness rather than of strength or robustness. No variety has given to growers more entire satisfaction than has Royal Sovereign, but, all the same, we wait hopefully for a better. I have no enthusiasm for big fruits: at the most they represent a very grossly-grown and severely-thinned crop. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL

MAY 14.—Notwithstanding the near approach of the "Temple" show, the ordinary meeting of the Committees at the Hall in Vincent Square, on Tuesday last, was attended by a first-rate display of exhibits. Novelties appeared fewer than usual, but the ORCHID COMMITTEE recommended two Awards of Merit, and the FLORAL COMMITTEE six Awards of Merit. No awards were made to novelties by the NARCISSUS or FRUIT COMMITTEES.

The groups of plants and flowers were extremely varied in character, and together made an excellent exhibition. Probably those which exhibited the highest degree of culture included the collection of Auriculas contributed by Mr. JAMES DOUGLAS, for which a Gold Medal was awarded, and the collection of Odontoglossums from NORMAN C. COOKSON, Esq.

At the afternoon meeting a number of new Fellows were added to the roll of the Society, and Mr. J. C. Stevens, the well-known auctioneer, gave lantern reproductions of his celebrated photographs, representing studies of plants, animals, and curios.

Mr. J. Burtt-Davy, who has been absent in the South of Europe, was obliged, through indisposition, to postpone his address to the Scientific Committee on the "Vegetable Resources of the Transvaal."

Floral Committee.

Present: W. Marshall, Esq. (chairman), and Messrs. C. T. Druery, Geo. Nicholson, Jno. Green, T. W. Turner, Chas. E. Pearson, Geo. Paul, W. J. James, W. P. Thomson, E. H. Jenkins, W. Cuthbertson, C. E. Shea, Arthur Turner, H. J. Cutbush, W. Bain, W. Howe, Chas. Dixon, Jas. Douglas, J. W. Barr, C. R. Fielder, J. F. McLeod, Ed. Mawley, R. C. Reginald Neville, E. T. Cook, Jno. Jennings, and R. C. Notcutt.

Mr. JAMES DOUGLAS, Edenside, Gréat Bookham, Surrey, eclipsed all his former efforts in his beautiful exhibit of Auriculas, and surpassed even his display of last season. On this occasion he staged 400 plants in about 125 varieties, and each plant was a specimen. He had all, or nearly all, of the best varieties in existence, but especially fine were Dean Hole, Ganymede, Thetis, The Bride, and Argus among Alpines; Rev. F. D. Horner and Shirley Hibberd, grey edge; Islas Maid, yellow edge; Mrs. Potts, blue-edged self; and Old Gold, fancy. (Gold Medal.)

Amongst the choicest displays in this excellent exhibition was a group of Rhododendron Pink Pearl exhibited by Messrs. JOHN WATERER & SONS, Bagshot, Surrey. The quality of the flowers was remarkable, and in a setting of beautiful Maples appeared extremely handsome. The group received the high award of a Silver-Gilt Flora Medal.

Messrs. H. B. MAY & SONS, Upper Edmon-ton, staged Verbenas in great assortment, including varieties of the type known as Auricula-eyed. The best were Unique (mauve), The Queen (salmon), and Favourite (violet purple). We also noticed the dwarf scarlet-flowered Salvia named Zurich, a form of *S. splendens* that may be recommended for bedding purposes. The whole exhibit was interspersed with choice Ferns. (Silver Banksian Medal.)

Messrs. CARTER PAGE & Co., 52-53, London Wall, London, E.C., showed an assortment of Sweet Peas, grown under glass; Phlox Drummondii, some choice Antirrhinums, Diplacus glutinosus, Fuchsias in variety, and some very fine bunches of Viscaria oculata.

Messrs. DOBBIE & Co., Rothesay, N.B., and Marks'ey, Essex, again exhibited Pansies and Violas in great variety. One of the newer Violas is W. H. Edwards, of Plum colour with red striations. Three of the best bedding Violas are Admiral of the Blue, Princess Ida (pale lavender), and Maggie Clunas (primrose yellow). Messrs. DOBBIE also showed some remarkably vigorous Polyanthuses, also Anemones and Tulips. (Silver Banksian Medal.)

Sir EDMUND LODER, Bart., Leonardslee, Horsham, Surrey (gr. Mr. W. A. Cook), displayed a number of interesting flowers from the open garden, including several handsome hybrid Rhododendrons raised at Leonardslee. Limonia trifoliata has small Magnolia-like flowers on spiny branches. Other interesting plants were Fendlera rupicola, Andromeda arborea, Ranunculus pyrenaica, Exochordia grandiflora, Trilliums, Magnolias, Maples, &c. (Silver Banksian Medal.)

Messrs. PAUL & SON, Old Nurseries, Chess-hunt, displayed hardy flowering shrubs—Lilacs in the choicest varieties, both single and double-flowering, Rhododendrons, a large form of the double variety of Kerria japonica, Abelia floribunda, Halesia tetraptera, and many others.

Messrs. J. CHEAL & SON, Crawley, Sussex, showed flowering shrubs. Many beautiful varieties of Rhododendrons, Lilacs, Magnolias, Crab Apples, &c., were displayed. A handsome Crab is Pyrus Malus var. "transcendent." We also noticed the new Magnolia Soulangeana nigra.

Messrs. GEO. BUNYARD & Co., Maidstone, Kent, had named varieties of Lilacs, and an assortment of hardy flowers. *Ethionema hybrida* is a Crucifer with globular heads of rose-coloured flowers shown in this collection.

Mr. A. F. DUTTON, Iver, Bucks., staged a group of winter-flowering Carnations. The flowers were remarkably fine, and the varieties represented the best of these popular flowers, including White Perfection, the improved form of White Lawson, Robert Craig, Mrs. T. W. Lawson, &c. (Silver-Gilt Banksian Medal.)

Another grand exhibit of these Carnations was displayed by Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, who had in addition Schizanthus, Callas, Lantanas, Kalanchoe Kewensis, Coronilla pygmaea glauca, some new varieties of Cannas, and handsome Phyllocactus. As a separate exhibit, Messrs. VEITCH showed some flowering shrubs and trees. At the back of the group were tall plants of Prunus pissardii, with Prunus pseudo-Cerasus J. H. Veitch, Cereus Juliana pendula, and in the foreground Rose Dorothy Perkins, with large, drooping clusters of flowers, Hydrangeas, Azaleas, Maples, Prunus sinensis, &c., the whole forming a group of great beauty. Azalea roseiflora was much admired. The small, salmon-pink flowers may be compared to tiny flowers of Camellias. (Silver-Gilt Flora Medal.)

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, also showed vases of Carnations and a few plants of the Souvenir de la Malmaison variety. Besides the Carnations, Messrs. LOW displayed greenhouse flowering plants. (Silver Banksian Medal.)

Messrs. JOHN PEED & SON, Streatham, Surrey, filled a very large table with Gloxinias. These showy flowers were exhibited in all shades of colours, and with self and mottled flowers. The beautiful heliotrope-coloured Countess of Ilchester was amongst the finest, but King Edward VII. (scarlet), Brilliant, and E. Higgins (mottled) are also extremely beautiful varieties. (Silver Flora Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, showed a handsome group of forced flowering shrubs, Wisterias being an especial feature. (Silver-Gilt Banksian Medal.)

Messrs. W. CUTBUSH & SON, Highgate, London, N., exhibited many showy, tender-flowering plants, having Rhododendrons, Azaleas, Verbenas, Stocks, Roses, Cinerarias, Ericas, &c., all prettily displayed. Mention must be made of a fine plant of a white Rhododendron. (Silver Flora Medal.)

Mr. CHAS. TURNER, Royal Nurseries, Slough, staged pyramidal plants of Azalea indica; the best examples were Mad. Louise Vervaena (white), Louise Cavellier (white), and of exquisite

form), and President Oswald de Kerchove (salmon pink with white). Mr. TURNER also displayed Lilacs in double and single varieties. (Silver Flora Medal.)

Messrs. W. PAUL & SON, Waltham Cross, again showed rambling Roses in splendid condition. The beautiful white L'Innocence was shown in admirable form as a standard; there were also plants of Jean Ducher, Mad. Charles de Luze—a new H.T. with large, white flowers, having coppery-red centres, and others. (Silver Banksian Medal.)

A very pretty display of Roses was shown by Messrs. BENJ. R. CANT & SONS, Colchester. At the back of the exhibit were tall plants of rambling varieties, the best being Blush Rambler. Among the separate blooms in boxes was a noble flower of the flesh-pink-coloured Princess Marie Merckersky, a hybrid-Tea variety. There were also examples of Killarney, General Jacqueminot, La France, Dean Hole, and other beautiful kinds. (Silver Flora Medal.)

Messrs. FRANK CANT & Co., Colchester, also made an exhibit of Roses. The climbing Minnehaha was crowded with its double pink flowers, which hung in dense clusters. Trier is a white Polyantha variety of much merit. There were also single blooms of Tea and hybrid Tea kinds, prominent amongst which were Betty, Lady Roberts, and Killarney.

Messrs. T. S. WARE, LTD., Ware's Nursery, Feltham, had many Roses among an exhibit of miscellaneous flowers, including Carnations, and hardy subjects. A pan of Bletia hyacinthina was freely flowered. There were also many Primulas, Saxifragas, Irises, Asperula suberosa, Rhemannia angulata, &c. (Silver-Gilt Banksian Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, showed the beautiful, though small Phyllocactus German Emperor, with delicate pink-coloured flowers, and a brilliant display of Zonal, Regal, and Decorative Pelargoniums. (Silver Flora Medal.)

A very handsome strain of herbaceous or large-flowering Calceolarias was exhibited by Messrs. J. JAMES & SON, Farnham Royal, Slough. The plants were examples of high culture, and the large flower-trusses were developed on short, sturdy peduncles. (Bronze Flora Medal.)

A small semi-circular group of these plants was also exhibited by C. S. LAYTON, Esq., Thornton, Harrow Weald, Middlesex.

Messrs. JAMES CARTER & Co., High Holborn, London, staged a very imposing exhibit of Cinerarias on the floor, with the wall as a background. The group had a central prominent bay, and on either side were other smaller bays. Star or stellate varieties were intermingled with the larger-flowered type, the colours being very beautiful. Ferns and Palms were used to furnish greenery. (Silver Flora Medal.)

J. A. YOUNG, Esq., Stove House, West Hill, Putney (gr. Mr. G. H. Street), displayed a group of heavily-flowered Schizanthus Wisetonensis, interspersed with Cinerarias, Palms, and Codium, and edged with Marantas, Dracenas, Pandanus, and Caladiums. (Bronze Banksian Medal.)

Mr. G. REUTHE, Keston, Kent, had a large batch of Primula Sieboldi, in named varieties, a fine assortment of Rhododendrons, and interesting hardy flowers. Oxalis enneaphylla has a pleasing white flower and very dissected rotund leaves. Antirrhinum asarina and Embotrium coccineum were both shown in flower.

Exhibits of hardy flowers were also displayed by the GUILDFORD HARDY PLANT NURSERY; Messrs. G. & A. CLARK, LTD., Dover; Messrs. GEO. JACKMAN & SON, Woking Surrey, who showed Trollius in fine form (Silver Banksian Medal); Misses E. & M. KIPPING, Hutton, Essex; Misses HOPKINS, Barming, Kent (Bronze Banksian Medal); and Mr. H. C. PULHAM, Elsenham, Essex.

Mr. C. W. BREADMORE, Winchester, presented several vases of Sweet Peas. The flowers were scarcely smaller than those developed in the open.

A group of the beautiful Onco-Regella Irises was shown by Mr. C. G. VAN TUBERGEN, jun., Zwanenburg Nurseries, Haarlem, Holland, in varieties some of which have been noted on former occasions, including Hera, Flora, Hecate, Charon, Iris, Yocaste, &c. (Bronze Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants, showed seasonable hardy flowers. Pæonia tenuifolia rosea has flowers like a

beautiful pink Shirley Poppy. A pale form of *Alyssum saxatile* was exhibited under the name of *citrina*. Mr. PRICHARD had also varieties of Bluebells in different colours, including pink and white.

Mr. AMOS PERRY, Enfield Chase, Middlesex, showed an assortment of hardy flowers. The beautiful *Anchusa italica* (Dropmore variety), *Camassia Cusicki*, *Euphorbia Wulfeni*, *Tiarella cordifolia*, *Pentstemon Menziesii*, *Primula Munroii*, and *Iris iberica* were all shown in the best condition. A hybrid *Iris* of the type of *Iris iberica* possessed considerable merit.

Sir JAMES W. MACKAY, 23, Upper Sackville Street, Dublin, exhibited a number of St. Brigid Anemones in vases.

A remarkably fine batch of the blue *Saint-paulia ionantha* was shown by the Marquis of SALISBURY, Hatfield House, Herts (gr. Mr. H. Prime). The plants were very heavily flowered and, interspersed with *Pilea muscosa*, made a very pretty exhibit. (Silver Banksian Medal.)

H. A. MANGLES, Esq., Littleworth Cross, Seale, Surrey, staged three new *Rhododendrons* with large pink flowers.

J. T. BENNETT POE, Esq., 29, Ashley Place, S.W., showed a plant of *Cantua buxifolia* with its drooping pendulous flowers freely developed.

BEES, Ltd., Wapping Buildings, Liverpool, showed a variety of *Mimulus grandiflora* with dark-coloured flowers.

AWARDS.

AWARDS OF MERIT

were recommended to the six plants enumerated below:—

Aubrietia "Henry Marshall."—A seedling variety with purple flowers, of rather less size than those of the variety known as A I. It is exceedingly free in blooming, and it has the quality of flowering later in the season than Dr. Mules or "A. I." Shown by Mr. MAURICE PRICHARD.

Clivia miniata var. *citrina*.—This is a perfectly yellow variety of this well-known greenhouse plant of a pale apricot shade similar to that seen in some of the hybrids of *Hemerocallis*. Shown by the Hon. Mrs. EVELYN CECIL, 10, Eaton Place, who afforded the information that the plant was found growing wild in Zululand.

Gladiolus atroviolaceus.—This slender-growing species, from Palestine, has violet-coloured flowers, but the three lower segments are striped with white. The general effect is of rich, rather deep violet colour. The leaves are narrow and of bluish-green tint. The inflorescence is generally twisted, or bent, grows about 20 inches high, and bears seven or more flowers each. It is a very interesting species for the plant-lover, but may not equally attract the multitude. Shown by Messrs. WALLACE & Co., Colchester.

Haberlea rhodopensis var. *virginialis*.—This is a pure white variety of this Gesneraceous plant, which was introduced from Roumelia in 1880. (See *Bot. Mag.*, tab. 6651.) The plant is a hardy herbaceous perennial, and its cultural requirements are somewhat similar to those of *Ramondia*. Shown by Mr. R. FARRER, Craven Nursery, Clapham, York.

Hydrangea arborescens var. *grandiflora*.—This variety of *H. arborescens*, a hardy North American species, has larger, pure white flowers than those of the type. Shown by Messrs. PAUL & SON, Cheshunt.

Iris x *Luna*.—A variety of the *Onco-Regelia* section raised by Mr. C. G. VAN TUBERGEN, jun., Haarlem, Holland. It is an improvement on the variety *Artemis*, of which an illustration was published in these pages on May 28, 1904, p. 349. "Luna" has large, handsome standards of a shade of violet, the veins being of deeper tint. The falls are of great width, beautifully rounded, and have a large, very rich purple blotch, the remaining portion being of lighter shade, but having the veinings as deep as on the blotch. It is a flower in which the "pencil" characteristic of this type is seen at its best. Shown by Mr. C. G. VAN TUBERGEN, jun.

Narcissus and Tulip Committee.

Present: Mr. H. B. May (chairman), Miss F. W. Currey, and Messrs. P. R. Barr, R. Sydenham, W. Poupart, F. D. Hall, G. H. Engleheart, A. M. Wilson, J. Walker, J. R. de

Boscawen, J. de Graaff, G. W. Leak, J. Jacob, J. T. Bennett Pöe, E. A. Bowles, J. D. Pearson, A. R. Goodwin, and C. H. Curtis (hon. sec.).

The only collection of *Narcissi* before the committee was one from Miss H. SPURRELL, Bessingham, Norfolk. Noticeable in the group were very beautiful flowers of *Narcissus triandrus pulchellus*, and these were displayed in considerable quantity. Other good things included *Zoe*—a fine poeticus; Agnes Harvey (Leeds), a beautiful flower; Mrs. F. Barclay, Chloe, and May Blossom, the two last-named being seedlings of promise.

Among the collections of Tulips, that from Messrs. R. W. WALLACE & Co., Colchester, was of considerable importance. The fine bank of flowers largely made up of Darwin and May-flowering kinds afforded variety sufficient to satisfy the most exacting. Among the more showy kinds we select *fulgens lutea maxima*, Flame, Inglescombe Pink, a most handsome flower in salmon and buff with bright pink tints; Orange Beauty, Coronation Scarlet, The Fawn, &c. The true Darwin kinds were in great quantity, and they were much admired. (Silver-Gilt Flora Medal.)

A very handsome exhibit of Tulips came from the nurseries of Messrs. ALEXANDER DICKSON & SONS, Dawson Street, Belfast, the group being particularly rich in Darwin kinds. Gold Vase is a very appropriate name for a bold and showy flower of old-gold colour. We also noticed Pride of Haarlem, Margaret, Mdme. Krelage, Rose Queen, Farncombe Sanders, &c. (Silver-Gilt Banksian Medal.)

A similar award was made to Messrs. R. H. BATH & Co., LTD., Wisbech for a very large and representative gathering of Tulips, which embraced the Cottage May-flowering and Darwin types, each represented by the leading varieties.

Another very liberal display of these seasonable flowers came from Mr. ALEX. WILSON, Spilsby, Lincs., the fine bunches being well displayed and of excellent quality. (Silver Flora Medal.)

Messrs. BARR & SONS, Covent Garden, London, W.C., also received a Silver Flora Medal for a large array of beautiful kinds of Tulips, and here again were seen representatives of the Cottage, May-flowering and Darwin types. Particularly good among the latter were Sultan, Phyllis, Clara Butt, Glow, Loveliness, and King Harold.

Messrs. JAS. VEITCH & SONS, LTD., Chelsea, had an exhibit of Tulips chiefly of Darwin and May-flowering sorts in the best varieties. (Silver Banksian Medal.)

Smaller groups or collections were also staged by Messrs. WALTER WARE & Co., LTD., Bath; Mr. MAURICE PRICHARD, Christchurch, Hants.; Messrs. GILBERT & SON, Bourne, Lincolnshire; and Messrs. Wm. BULL & SONS, Chelsea.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), De B. Crawshaw, W. A. Binney, Fred. J. Hanbury, J. Wilson Potter, H. A. Tracy, H. G. Alexander, W. H. Young, H. J. Chapman, J. Charlesworth, W. Cobb, A. A. McBean, W. P. Bound, F. M. Ogilvie, Francis Wellesley, C. J. Lucas, G. F. Moore, W. Boxall, A. Dye, H. Little, H. Ballantine, and Harry J. Veitch.

Among the most important exhibits was the fine group of *Odontoglossums* staged by NORMAN C. COOKSON, Esq., Oakwood, Wylam (gr. Mr. H. J. Chapman), and the most remarkable of the select varieties of blotched *O. crispum* in the group was the noble *O. crispum* Leonard Perfect, which was the centre of attraction in Messrs. Sanders' group at the Temple show last year, and which was illustrated in *The Gardeners' Chronicle* from that specimen, June 2, 1906, pp. 348-9. Since that time the plant has been divided, but the portion falling into Mr. Chapman's hands shows flowers equal at least to the original, of a clear white, with the whole central area of the segments of a soft purple tint. The flower measures $4\frac{1}{2}$ inches at its widest part, the fringed petals are nearly as broad as they are long, and the labellum is large and showy, thus exhibiting a fine feature which is lacking in many other good forms. The plant has been in flower a month, and was still in fine condition. Next in importance was *O. crispum* Fearnley Sander, whose surface was evenly blotched with reddish purple, the disc of

the lip having a peculiar dark yellow tint; other good forms noted were *O. crispum* Moonlight, with blotched sepals, and a cluster of purple spots in the middle of the petals; *O. c. Abner* Hassall, *O. c. Eustace*, *O. c. Mariæ*, *O. c. Peetersii*, *O. c. Whateleyæ*, and some unnamed forms, all finely spotted. *O. c. Angela* has very bright purple markings. With the *Odontoglossums* were a selection of the Oakwood hybrid Phaius, including Harold, Norman, Phoebe, Ruby, and Oakwoodjensis; also *Cattleya Schroderæ* alba and some other showy kinds. (Silver-Gilt Flora Medal.)

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, staged a bright and effective group, in the centre of which was a very fine specimen of the scarlet *Renanthera imschottiana*, with a nine-branched hybrid of about 100 pretty flowers. Beside it were the new *Brasso-Cattleyo-Lælia* Veitchii and *Brasso-Lælia* Digbyano-purpurata; the remainder of the group was made up of excellent forms of *Cattleya Mendelii*, *Masdevallia Veitchiana*, *Lælia Latona*, various *Odontoglossums*, including the fine violet-purple blotched *O. ardentissimum* Lamus, &c. (Silver Flora Medal.)

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a group of splendidly-grown *Odontoglossums*, among which were *O. crispum* Raymond Crawshaw and *O. c. Crawshawana*, *O. c. Trianae*, and other well-known spotted forms. *O. crispum* Mrs. De B. Crawshaw is a charming white flower, with a delicate rose flush on the sepals; and *O. Rossii* immaculatum, a unique, unspotted variety. Also in the group were a very fine form of *O. crispum* Harryanum and the new *O. Urania* (cristatellum x spotted crispum), the first of the batch to flower, and which adheres closely to *O. cristatellum* in form and in the sepia-brown blotching. It is expected that others of the batch will show more of the character of *O. crispum*. (Silver Flora Medal.)

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, had a very fine group composed principally of about sixty plants of their excellent type of *Cattleya Mendelii*. The flowers were generally of the mauve-lipped class, but there were several very pretty bluish-white forms, one of them having the petals and lip finely crimped and beautifully veined with light rose colour. Two fine specimens of *Cattleya Skinneri*, *Cœlogyne pandurata*, a very dark *Lælio-Cattleya* Dominiana, *Cattleya Mozart*, *C. Parthenia* Prince of Wales, and others were also included. (Silver Flora Medal.)

Messrs. SANDER & SONS, St. Albans, staged an effective group, at the back of which were several very fine specimens of *Dendrobium thyrsiflorum*, with from seven to twelve flower spikes; and a well-flowered lot of *Dendrobium Devonianum*. On either side were two fine examples of *Lælio-Cattleya* Hyeana (Lawrenceana x purpurata) carrying six flowers each, the petals of one being veined with purple, and the lip of a deep claret colour. With these were two specimens of *Tichopilia crispa* Champlatreux variety with rich crimson labellums; the pretty *Bifrenaria Harrisoniæ* pubigera, *Angraecum arcuatum*, and the rare *Cœlogyne virescens* with cream-white flowers having blackish markings on the lip. Among the *Odontoglossums*, the best was a home-raised *O. crispum*, with good flowers, having the segments heavily blotched with reddish purple; another handsomely-blotched flower was obtained by crossing *O. Wilckeanum* and *O. crispum*. (Silver Banksian Medal.)

Messrs. J. CYPHER & SONS, Cheltenham, staged a small group in which were two very fine, large-flowered, deep magenta-rose forms of *Miltonia vexillaria*, and two of an equally large form with white labellums; a fine *Cattleya Skinneri* with white flowers having a slight lilac tint; *Cattleya intermedia* alba and some well-bloomed *Leptotes bicolor*. (Silver Banksian Medal.)

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), staged a group in which about thirty-six species and varieties were represented. *Cattleya Mendelii* and *C. Lawrenceana* were well shown; also *Cymbidium Lowianum* and *C. Low-grinum* (Lowianum x tigrinum), *Phaius Norman*, *Masdevallia O'Brieniana*, *M. trinema*, *M. xanthina*, *M. ignea* Ellisiana, *M. Houtteana* and other species. (Silver Banksian Medal.)

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), sent *Odontoglossum Ossulstonii* (Glebelands variety) (*crispum* *Harryanum* × *Pescatorei* *Charlesworthii*), a very pretty variety with white ground colour, bearing distinct violet-purple blotching. The lip is broad, white in front, and with purple markings around the yellow crest.

Major G. L. HOLFORD, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), showed *Lælio-Cattleya Ganymede* illustre (*L. Latona* × *C. Schröderæ*) differing from the one shown at the last meeting by having the yellowish petals bearing purple lines up the middle, the front of the lip being deep claret-crimson.

W. A. BILNEY, Esq., Fir Grange, Weybridge Heath (gr. Mr. Whitlock), sent *Cattleya Mossiæ* "Mrs. W. A. Bilney," a very large and handsome flower, with broad, light-rose coloured sepals and petals, the handsome lip having a chrome-yellow disc with crimson marking in front.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, showed *Cattleya Schröderæ* "The Bride," a clear, white flower with bright yellow centre to the lip and yellow lines on the lateral sepals. Also a fine *Lælio-Cattleya Wellsiana*, and a good spotted *Odontoglossum*.

Monsieur MERTENS, Mont St. Amand, Ghent, showed several pretty hybrid *Odontoglossums*.

Mr. H. A. TRACY, Orchid Nursery, Twickenham, sent *Cattleya Mossiæ* "Mrs. H. Rider Haggard," a very distinct white flower of good substance, with a yellow tinge in the centre of the lip and distinct slate-blue marbling in front.

AWARDS.

AWARDS OF MERIT.

Odontoglossum crispum xanthotes "White Lady."—A very fine variety, with well-formed, clear white flowers, with an occasional orange-coloured spot on some of the sepals, and a clear orange-coloured disc to the lip. The plant shown was very finely cultivated, and bore a magnificent spike of flowers. From F. MENTREITH OGILVIE, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth).

Oncidium leucochilum "Mrs. F. J. Hanbury."—A very distinct form of the pretty species originally imported from Guatemala in 1835, and later from Mexico. The variety Mrs. F. J. Hanbury differs from others in having the sepals and petals almost entirely of a purplish-chocolate colour, well contrasting with the clear-white lip. The plant shown had a spike 4 feet in height, with fifteen branches, and bearing about 100 flowers. From FREDERICK J. HANBURY, Stainforth House, Upper Clapton.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (chairman); and Messrs. Jos. Cheal, W. Bates, Geo. Kelf, Edwin Beckett, Alex. Dean, H. Parr, A. R. Allan, W. Pope, R. Lye, J. Davis, P. D. Tuckett, C. G. A. Nix, Charles Foster, Owen Thomas, J. Jacques, and James Vert.

Three boxes of very large fruits of Royal Sovereign Strawberry were shown by the Marquis of SALISBURY, Hatfield House (gr. Mr. H. Prime). (Silver Banksian Medal.)

A couple of dishes of Lane's Prince Albert Apple were shown by Messrs. LANE & SON, Berkhamsted, for which a cultural commendation was awarded.

The same award was also given for an early Marrowfat Pea named World's Record, shown by Messrs. SUTTON & SONS, Reading, and for Rhubarb Hobday's Giant, shown by Mr. G. HOBDAV, Havering Road, Romford.

The Pea was raised from Harbinger and Early Giant, and it is claimed to be 10 days earlier in cropping than the latter. The pods are 4.5 inches in length, and the haulm is dwarf.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MAY 2.—Committee present: E. Ashworth, Esq. (chairman); and Messrs. Cypher, Thorp, Parker, Ashton, Keeling, Walmsley, Warburton, Rogers, Sander, Ward, Cowan, Stevens, Thompson, P. Smith, Duckworth, Williamson, and Weathers (hon. sec.).

This meeting closed the 1906-1907 session, and was well attended by the members. The "Sander Cup" competition was also completed at

this meeting, and the result will be made known at the annual meeting of the society on May 16. W. THOMPSON, Esq., Stone, exhibited a grand display of plants for which he was awarded a Gold Medal.

A. WARBURTON, Esq., Haslingden, gained a similar award for a charming group.

Other groups were staged by R. ASHWORTH, Esq., Newchurch (Silver Medal), and by Messrs. CYPHER & SONS, Cheltenham (Silver Medal).

The following Awards were granted:—

FIRST-CLASS CERTIFICATES: *Odontoglossum Prince Edward of Wales* (O. Rolfe × O. Harryana *crispum*), shown by W. THOMPSON, Esq.; and O. *crispum* President Laurier, exhibited by A. WARBURTON, Esq. AWARDS OF MERIT: *Miltonia Roezlii magnifica*, exhibited by H. J. BROMILOW, Esq.; *Oncidium monachicum* var. *metallicum*, *Renanthera Imschootiana*, *Odontoglossum crispum* "Queen of Spain" (disbudded), O. C. A. J. Balfour, O. × Prince Albert (*ardentissimum* × *Wilckeanum*), O. *crispum* *amabile*; O. *Harryanum* var. *Elinor*, *Masdevallia Chamberlainianum*, *Odontoglossum Adrianae* Lord Kitchener, O. × *Phoebe Walton* var. (*cirrhosum* × *Luciana*), O. × C. Ronald, O. *amabile* var. *mosiacum*, O. *mulus magnificum*, and O. *Rolfe splendens*, all shown by W. THOMPSON, Esq.; O. *Uro Skinneri alba*, O. c. *Pink Beauty*, O. species (unnamed), O. *Lambeaunum* Warburton's var.; *Cattleya intermedia corulea*, the last-named five shown by A. WARBURTON, Esq.; C. Mendellii General Botha from the nursery of Messrs. H. Low & Co.; and C. *Lawrenceana Hyeana*, exhibited by R. ASHWORTH, Esq.

INTERNATIONAL EXHIBITION AT MANNHEIM.

MAY 1.—The Jubilee International Exhibition which was opened on the above date, writes a correspondent, "was of special interest on Tuesday, May 7, when the Orchid competitions filled the large hall in the Rose garden. This hall (about the size of the Royal Horticultural Society's hall in Vincent Square) presented a fine sight with the Orchids arranged on long tables. The competitions were numerous, and included those for a collection of Orchids in 100 varieties, a collection of botanical Orchids, a collection of *Dendrobiums*, and a collection of *Cypripediums*. Prize winners included Messrs. BEYRODT, of Berlin; MARON, of Brunoy; and HUGH LOW & Co., of Bush Hill Park, who filled an entire table with a large and interesting group representing most of the Orchid families in cultivation, and were awarded two first and one second prize in the above competition. Messrs. Low also received a Gold Medal for a group of English and American perpetual-flowering Carnations, in which were included several novelties.

At no time did the attendance seem very numerous, neither was there so much enthusiasm to be seen as is common at similar shows in England; however, if the Germans excelled in cultivation as they do in artistic arrangement, we English would be outclassed."

Obituary.

REV. S. EUGENIE BOURNE.—We regret to announce the death on the 11th inst. of the Rev. S. Eugenie Bourne, B.A., Vicar of Dunstan, near Lincoln. Mr. Bourne was a member of the Royal Horticultural Society's Narcissus and Tulip Committee, and was as keen as other florists in his admiration for proportion in flowers. It was a speech made by Mr. Bourne, at the dinner of the Midland Daffodil Society, at Birmingham, last year, that prompted our article on "Balance in Flowers," published in these pages on May 12, 1906. Deceased had a keen appreciation for Daffodils. He deprecated mere size in flowers, and at all times encouraged an appreciation for "balance" or symmetry. If, he said, a flower first appealed to the observer by reason of an extra large perianth, or an unusually and disproportionately long trumpet, such a flower was not all it should be. Neither this nor that special feature should be unduly prominent. A big trumpet must be "balanced" by a large perianth, and so on. Mr. Bourne was the author of *The Book of the Daffodil*, published by Mr. John Lane. He will be much missed by a large number of horticultural friends.

WILLIAM O'REILLY.—We learn through the courtesy of Prof. Sargent of the death of this well-known British gardener, at Parque Cousino, Lota, Chili. Deceased succumbed to an attack of apoplexy on January 7. The late Mr. O'Reilly was an excellent cultivator, and he made the Cousino Garden at Lota one of the most interesting gardens in the world. Most horticultural visitors to Chili knew the gardens and its late gardener, who is especially mentioned in Ball's *Notes of a Naturalist in South America*, wherein the author states that deceased came from Wexford, in Ireland, and that he received training in the Royal Gardens at Kew. Ball further says: "I left the Parque at Lota with my memory full of the pictures of a spot which, along with Mr. Cooke's famous garden at Montserrat, near Cintra, and that of M. Landon, in the Oasis of Biskra, I count as the most beautiful garden that I have yet seen."

JESSE LEE.—In the American horticultural Press we note the death of Jesse Lee, at Marshall, Mich., U.S.A., on Saturday, March 30, after an illness of three weeks. The deceased was nearly 85 years old, and his demise was due to his advanced years. He had lived at Marshall 47 years, having emigrated directly from Kent, his native county.

DR. ROBERT BARNES, M.D.—The death of Dr. Barnes, at Bernersmede, Eastbourne, at the age of 90 years, is announced in *The Times*. Deceased's father was Philip Barnes, of Norwich, who, in conjunction with James De Caille Sowerby, founded the Royal Botanical Gardens in Regent's Park. At the time of his death deceased was one of the oldest Fellows of the Linnean Society.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending May 11, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was generally cloudy or overcast, but very considerable intervals of sunshine were experienced in the south and east of England. Falls of rain were rather frequent in most districts, and thunderstorms occurred at times in several English and Scottish districts. A thunderstorm also passed over Dublin on Monday.

The temperature was below the average in Ireland S. and the Channel Islands, above it elsewhere, the excess amounting to 4.5° in the Midland Counties, and about 5° in England E. and N.E. As a general rule the highest of the maxima were recorded on the 11th. In England E. (at Hillington) the thermometer rose to 80° and in England N.E. to 79°; in Scotland N. the highest reading was 68° and in Ireland 63°. The lowest of the minima, which were mostly recorded on the 5th, ranged from 37° in Scotland E. and 38° in England E. and in Ireland, to 33° in Scotland W. and to 44° in the Channel Islands.

The mean temperature of the sea.—There was a very general increase in the warmth of the water on all parts of the coast amounting in many places to more than 1°. The actual values ranged from 61.6° at Newquay and 50.9° at Seafield to 46° or rather less on most parts of our north and north-east coasts, and to 44° at Wick.

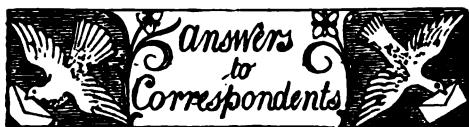
The rain/fall exceeded the average except in Scotland E. and England E. and N.E.; in the western districts the excess was large.

The bright sunshine was just equal to the average in England S., and above it in England E.; elsewhere, however, there was a deficiency. The percentage of the possible duration ranged from 68 in England E. and 46 in England S. to 24 in Scotland W., and to 21 in England S.W.

THE WEATHER IN WEST HERTS.

Week ending May 15.

Exceptionally warm and very wet.—Throughout the last ten days the temperature has continued very warm, both during the daytime and at night. On the two warmest days, which occurred during the past week, the highest readings in the thermometer screen were respectively 76° and 78°. Both of these readings are the highest as yet recorded here this year, and also higher than any previously recorded so early in May. During the past week the thermometer exposed on the lawn never fell lower than 88°. This is a very high extreme minimum for the week, which includes the almost constantly recurring cold period in May, lasting from the 9th to the 14th. At 3 feet deep the ground is now 3° warmer, and at 1 foot deep 8° warmer, than is seasonable. In the middle of the week the reading at the latter depth was as much as 5° warmer than the average. Rain fell on five days, to the total depth of 1½ inch, making this the wettest week since the last week in December, or for four and a half months. On the wettest day nearly three quarters of an inch of rain was deposited, which is the heaviest fall in any one day since November 8 last, or for more than six months. During the week 12 gallon of rain water has passed through the percolation gauge on which short grass is growing, and 2½ gallons through the bare soil gauge. The sun shone on an average for 6½ hours a day, or for half an hour a day in excess of a seasonable duration. On the first two days of the week the winds were rather high, but since then light airs have prevailed. There was again about a seasonable amount of moisture in the air at 3 p.m. A selected Horse-Chestnut tree came first into flower in my garden on the 10th, or three days earlier than its average date in the previous 16 years, and a fortnight earlier than last year. E. M., Berkhamsted, May 15, 1907.



EDITOR AND PUBLISHER.—Our Correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the Literary department, and all plants to be named, should be directed to the Editor. The two departments, Publishing and Editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

ADJUSTMENT OF A SUNDIAL: *W. G. S.* You do not say what kind of sundial you propose to erect—whether one of the horizontal type, such as is usually put on a pedestal in a garden, or a vertical dial to be attached to a wall, or an equatorial dial, which is different again from either. Assuming, however, that you contemplate erecting a horizontal dial, there is no definite length for the gnomon, but for a 12-inch dial, one of 8 inches long with a base of 4 inches would be appropriate. The base must be set perfectly horizontal, and it is important that the gnomon should make an angle with the base, and with the horizon, equal to the latitude of the place at which it is erected, and for Worcester Park this will be 51½ degrees. To mark off the position of the figures it is best to proceed as follows:—First attach the gnomon firmly to the dial; then set the dial in position on the pedestal with the gnomon accurately in the meridian. To do this a compass may be used, correcting it, of course, for magnetic variation; but a better way is to get correct Greenwich time from a post office (where at 10 o'clock a.m. they get a time signal from Greenwich), and set your watch to it. Then by subtracting one minute for the difference in longitude between Greenwich and Worcester Park you will get the local mean time for the latter place, and by adding to this local mean time four minutes for the equation of time, you will have the time at which the sun is in the meridian, and the dial must then be turned until the shadow of the gnomon falls in the same vertical plane as the gnomon itself. This will give the *noon* line, which it is most important to get accurately. The position of the other lines may then be marked by noting the position of the shadow at intervals of one hour, or half hour, after noon; and the hours before noon can be marked similarly next morning by noting the position of the shadow at precisely 8, 9, 10, and 11 o'clock. The correction we have given for the equation of time will serve till (say) May 26, after which date it will require to be modified in accordance with the change in the equation of time, as shown in Whitaker's or any similar almanac.

ANTS IN GREENHOUSES: *A. D.* If you can trace the haunts of these pests in the soil, they can be easily exterminated by pouring weak carbolic acid, bisulphide of carbon, or even boiling water, down their burrows. Should you not be able to trace them to their home, spread Ballikrain Ant Killer in their paths, but remember this and the acid and bisulphide of carbon are most deadly poisons, and adopt precautions accordingly.

BLACK CURRANT BUD-MITE: *G. P.* Destroy the two affected bushes and dust the healthy ones with a mixture of unsalted lime and flowers of sulphur in the proportion of one part of the lime to two parts of sulphur. As the insects are now migrating from bud to bud no time should be lost in making the application. See details of Mr. Collinge's treatment in our issue for January 26, 1907, p. 56.

BOOK ON FLORAL DESIGN: *J. W. and others.* The book on *Floral Design*, by W. D. Wiltshire, of which a notice appeared in our last issue (p. 301), can be obtained from our publishing department, price 1s. 1½d. free by post.

CARNATION DISEASED: *J. S. H.* We find no fungus present. The plant has rotted at the stem near the base, and few roots appear to

have developed or they have been killed. This suggests something wrong with the soil. Discontinue the use of manures, and see that the plants receive extra care in the matter of watering.

FORESTRY JOURNAL: *W. R. R.* Communicate with Prof. Fisher, Oxford, the Editor.

GRAPES: *F. C. S., Lincoln.* The injury is caused by *Gloeosporium ampelophagum*. Sprinkle the branches when damp with a mixture of one part powdered quick-lime and two parts flowers of sulphur. Remove all diseased fruit and leaves.

HIPPEASTRUM FLOWERS FADING: *A. T.* The *Hippeastrums* should last at least a fortnight in bloom. Probably the house in which you keep them is too warm, and not sufficiently ventilated. Remove the plants to a cooler, better ventilated house just before the flowers expand.

INSECTS ON FERNS, &c.: *H. P.* The pests are weevils. Trap them with slices of Carrot or Potato. They can also be killed in their haunts by carbon bi-sulphide poured down their burrows.

KAINIT AS A MANURE: *J. S. M.* This for general purposes is the cheapest and most economical potash manure to use. The best time to use it is during the winter, but it can be applied at any time to growing crops. Apply half a pound or less to every square yard.

MARKET PRICES, &c.: *G. B.* Either *The Fruit, Flower and Vegetable Trades' Journal*, 139-140, Salisbury Court, Fleet Street, E.C., or *The Fruit Grower, Fruiterer, Florist, and Market Gardener*, 1, 2, 3, Salisbury Court, Fleet Street, London, E.C., would furnish you with the information.

MELON LEAVES: *W. W.* We find no trace of disease. The leaves appear to be injured from some check; you will see that the youngest tissue around the margins has been injured the most. Strong fumigations or syringings of insecticide would cause such injury.

MICE INJURING STRAWBERRIES: *E. N.* As you have proved traps to be useless for ridding your land of mice and voles, the alternative is to employ poison, but do not delay in putting it about, for later when the fruits are ripe, poisoned mice would be very objectionable near them, and there would be also the danger of the mice eating the fruits immediately after consuming the poison. We should think the "Liverpool Virus" would be useful for the purpose.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **FRUITS:** *W. G. Gough.* Winter Pearmain.

PLANTS: *C. S.* The *Marattia* is *M. podolepis*, Sturm, which is sufficiently distinct for garden purposes from *M. cicutifolia*, with which it is united in Hooker and Baker's *Synopsis Filicum*, where a wide view of species is taken. It is not *M. attenuata*.—*T. R.* *Exochorda grandiflora*.—*Finchley.* *Oncidium caesium*.—*W. B. A.* *Odontoglossum triumphans*, but of a rather peculiar shade of colour.—*T. E. G.* *Pteris sinensis*; remove the plant to a cooler house. The Orchid appears to be *O. maculata*, but without foliage it is difficult to name correctly. The insect next week.—*A. C. M.* The climber is *Stauntonia hexaphylla*; the yellow flower *Arnebia echinodes*. *H. H.* 1, *Callicarpa purpurea*; 2, *Prunus Padus*; 3, *Metrosideros floribunda*; 4, *Abutilon megapotamicum*.—*W. S., Hants.* 1, *Cercis Siliquastrum* (Judas Tree); 2, *Prunus sinensis* flore pleno; 3, *Ribes aureum*; 4, *Colutea arborescens*; 5, *Tiarella cordifolia*; 6, *Prunus*

Padus.—*E. C.* 1, *Euphorbia Lathyris*; 2, *Maurandya Barclayana*; 3, *Akebia quinata*; 4, *Spiraea Thunbergii*. *G. L. F.* *Daphne colina*.—*A. W. G.* 1, *Lycium sinense*; 2, *Gentiana verna*. Thanks for one shilling (for R.G.O.F. Box).—*W. B.* *Odontoglossum triumphans* of peculiar marking.—*V. I. I.* 1, *Oncidium sarcodes*; 2, *Pleurothallis ornata*; 3, *Stelis micrantha*; 4, *Masdevallia simula*; 5, *Oncidium cheiroporum*; 6, *Odontoglossum blandum*.—*E. B.* *Helix Soleirolia*.—*G. W.* Please send a better specimen.

PEACH TREES DECAYING: *G. J. H.* The injury is caused by a fungus [*Botrytis*], which commonly attacks imperfectly-ripened wood, or young shoots that have suffered a chill. All diseased shoots should be cut off and burned, otherwise the disease will spread. After pruning spray the trees with a rose-red solution of permanganate of potash dissolved in water.

PLANTING OF FLOWER BEDS: *A Reader.* As your flower beds are situated in front of the house and are surrounded by plenty of grass, bright colours may be used without any danger of producing gaudiness. We have prepared a colour scheme of red, pink, and yellow. It is so near the planting season that it would be useless to suggest the use of any plants other than those which may be readily purchased. Your beds are of a formal character, and the planting of Nos. 1 and 5 should be of similar composition, and Nos. 2 and 4 should also be planted alike, or nearly so. In the first-named pair, plant a specimen of *Grevillea robusta* (about a foot to 18 inches high) a foot inwards from each point of the beds; plant the bed with good single-flowered tuberous *Begonias* edged with a band of *Gazania splendens*. For Nos. 2 and 4, along the centre at equal distances, plant three fair-sized *Cordylina australis* (often sold as *Dracena indivisa*). Select a few plants of Ivy-leaved *Pelargonium* *Mdme. Crousse*, or any similar pink variety, about 9 to 12 inches, trained to upright stakes, and place one plant between each *Cordylina* and outside the two end plants. Plant at one foot from the edge a row of the same variety along each side of these beds, putting the plants at 2 feet apart. Edge them with a good tricoloured *Pelargonium*, such as Mrs. Henry Cox or Mrs. Pollock, and fill in the rest of the bed with a good red-flowered bedding *Pelargonium* such as *Paul Crampel* or *King Edward VII.* No. 3 should have a good plant of any red-flowered *Canna* in the centre, edged with dwarf rose-coloured *Begonia semperflorens*, and filling up with *Calceolaria amplexicaulis*. This combination, with care and attention in the matters of watering and manuring later on, should give you a good display of flowers until late in the autumn. The pink Ivy-leaved *Pelargoniums* should be kept lightly tied in the shape of small pillars, and the tri-coloured varieties should be kept free of flowers.

ROSES FAILING TO GROW: *A. T.* It is probable that the plants being very much dried when you received them have died almost to the roots. It would be as well to cut the tops back, keeping the soil only just moist until the roots become active. The address you refer to should be Rio de Janeiro not San Domingo.

"SEAKALE" BEETROOT: *Cook.* The full-grown leaves may be cut from the growing plant, and, after being cleansed in two or three waters, plunged into slightly salted water after bringing it to the boiling point. The time required is from 15 to 20 minutes. Another method consists in cutting the midribs of a number of the leaves, cleansing and shortening them to 6-8 in., afterwards tying them in bundles of 20 as is done with Asparagus. This latter is the better way, as the ribs require more cooking than the thin part of the leaf. Like Seakale and Asparagus, this vegetable may be served with butter sauce, &c.

COMMUNICATIONS RECEIVED.—*T. R.*—*A. H.*—*A. C. C.*—*J. S.*—*H. & Son*—*E. G.*—Photographs from *W. M.*, *J. U.*, *W. B. H.*, *R. I. L.*, and *W. H. W.*—*W. M.*—*W. C.*—*L. E. W.*—*J. B.*—*L. Gentil* (Brussels)—*F. J.* Chittenden—*H. N.*—*H. W. U.*—*Susser Amateur*—*Royal Meteorological Soc.*—*A. R. A.*—*W. W.*—*R. S.*—*W. H. W.*—*Spencer P.*—*South Eastern Agricultural College*—*J. L.*—*A. S.*—*W. J. B.*—*Attwood and Binnet*—*W. P.*—*W. H.*—*F. M.*—*W. J. R.*—*A. W. W.*—*H. G.*—*W. D. T.*—*Constant Reader*—*W. G. S.*—*Linnean Society*—*G. Harding*—*D. M.*—*J. D. G.*—*F. G. T.*—*J. R. J.*—*A. D. W.*—*R. S. L.*—*W. D.*—*F. W.*—*J. C.*—*E. J. W.*—*R. I. L.*—*J. Udale.*

For Market Reports see page 2.



THE Gardeners' Chronicle

No. 1,065.—SATURDAY, May 25, 1907.

CONTENTS.

Adaptation of plants to their environment ...	832	Plants new or noteworthy—	
Apple sucker, the ...	838	<i>Odontoglossum</i> X	
Books, notices of—		<i>Leo</i> ...	836
Seaside planting of trees and shrubs ...	828	<i>Primrose</i> , a fleshy-leaved	832
Events, forthcoming ...	832	Propagator, the ...	829
Fruit committee, the		Pruning of fruit-trees ...	838
Royal Horticultural Society's ...	838	Public parks, summer bedding in ...	837
Graft hybrids ...	838	<i>Rhododendrons</i> , the cultivation of ...	835
Law note—		<i>Rose</i> mildew in Australia ...	833
Claim for Lily of the Valley crowns ...	834	<i>Rose</i> "Penelope" ...	833
"Linnæus" bi-centenary celebration ...	825	<i>Salvia splendens</i> compacta "Zurich" ...	833
Market gardening—		Societies—	
<i>Asparagus</i> culture in the Evesham district ...	829	British Gardeners' Association ...	838
Nomenclature, plant ...	833	Horticultural Club ...	839
Nursery Notes—		Royal Horticultural (Scientific Committee) ...	838
<i>Veitch, James, & Sons, Ltd.</i> ...	834	Royal Meteorological ...	840
<i>Wallace, R., & Co.</i> ...	834	Royal National Tulip ...	839
Obituary—		Strawberry Royal Sovereign ...	837
<i>Römer, George</i> ...	840	Sub-tropical gardening ...	835
<i>Odontoglossums</i> at Pittsburg ...	833	Tea, <i>Ranawara</i> ...	834
Orchids, the hybridisation of ...	833	Trees and shrubs—	
<i>Pear Beurré Diel</i> , a well-trained specimen of ...	827	<i>Viburnum Carlesii</i> ...	837
<i>Plagianthus Lyallii</i> ...	832	<i>Trilliums</i> , the ...	833
		Vegetables—	
		Bolting in Cabbages ...	827
		Week's work, the ...	830, 831

ILLUSTRATIONS.

<i>Asparagus</i> , packing of, at Evesham ...	829
<i>Dendrobium fusiforme</i> ...	837
Flowering spray of <i>Plagianthus Lyallii</i> ...	835
Linné, Carl Von ...	825
"Linnæus" Hall and Museum at Upsala ...	826
<i>Pear Beurré Diel</i> , a well-trained specimen of ...	827
<i>Plagianthus Lyallii</i> growing in the grounds at Castlewellan (Supplementary Illustration) ...	833
<i>Primrose</i> leaf, an abnormal, 832; section of ...	833

THE "LINNÆUS" BI-CENTENARY.

DURING the present week the attention of botanists has been directed to Sweden, in which country Linnæus was born on May 23rd, 1707. The botanical world everywhere has actively celebrated the bi-centenary of the great botanist's birthday. The University at Upsala has headed all such celebrations, it being the University where Linnæus occupied the first chair of botany. It is said that his ancestors took their surname from a large lime tree or Linden, growing in the garden of Linnæus' birthplace, at Rashult, in the Swedish province Smaland. Upsala, a pleasant, ancient Swedish town, is famous for its fine cathedral, where Linnæus' tomb is erected, and for the Museum and "Linnæus" Hall, of which we reproduce an illustration at fig. 136. But few of Linnæus' original specimens and papers are now contained in the hall at Upsala, and though Sweden may view this matter with pardonable regret, yet there can be little doubt that the collections which have found their way to this country have proved of far greater value to botanists of all nations than would have been the case had they remained at Upsala. The story as to how the collections ever came into the possession of Britain is interesting. After Linnæus' death they

passed to his son, whence, he dying without heir, his mother, the sole executrix, came into possession of them. Soon afterwards she offered them to Sir Joseph Banks, then scientific adviser to George III., but, for some reason or other, Banks did not secure them for the nation. At that time a young Norwich doctor called on Sir Joseph, telling him that he had taken much interest in botany and that he would like to do something for the science. Banks then spoke to this young well-to-do gentleman about the offer of Linnæus' collection, and he (the late Sir James Smith), after consultation with his father, bought the whole of the collections, books, manuscripts and the world's greatest herbarium for a very low sum.

This put Sir James at once into a prominent position in the world of botanists, and a few

Upsala, which are of a very important character.

Linnæus, or, as he was afterwards known, Carl von Linné, showed from early childhood a great interest in plant and insect life, much to the disappointment of his father, who was a pastor, and wanted his son to take up theological studies. Linné followed his own inclinations and went to the University Lund, where, under great privations, he studied for some time, afterwards going to Upsala, where, at the expiration of two years, he was appointed assistant lecturer in botany.

In 1732 Linné commenced his travels abroad, visiting Lapland. The results of his observations made during this journey were not published until several years later, during his residence in England, where he arrived towards 1736. Linné visited the gardens at



[From the original by P. Kraft, sen.]

CARL VON LINNÉ.

In the left hand is a spray of *Linnæa borealis*.

of these gentlemen met in 1778 and founded a society, which they called the Linnéan Society. After Smith's death this Society, which in the meantime had become an important institution, bought his collections, and they are now preserved in that Society's rooms at Burlington House. Thus the Linnéan Society has appointed a special representative to attend the celebration at Upsala and to present its Linnéan Gold Medal, to be held by the University of Upsala. Their choice has fallen upon Mr. Wm. Carruthers, F.R.S., who, during his presidency of the Society, was honoured by a mission to offer the fellowship of the Society to the then Crown Prince of Sweden. Mr. Carruthers, accompanied by the Society's excellent Secretary, Mr. Daydon Jackson, is at present taking part in the functions at

Chelsea and Oxford, procuring there many rare plants. He visited Martyn, Rand, Miller, and Sir Hans Sloane, but though he carried a letter of introduction to this great naturalist, he was received somewhat coldly by him. This, however, did not diminish Linné's enthusiasm for England, especially London.

From England he went to Leyden, and afterwards travelled to Antwerp, Brussels, Paris, &c., returning eventually to his native country, after an absence of comparatively few years from Sweden.

The number of important publications he issued demonstrate his activity. His first publication was his *Systema Naturae* (1735), followed in 1736 by his *Fundamenta Botanica* and *Bibliotheca Botanica*. In 1737 appeared his famous *Genera*

Plantarum, which is perhaps the most important and valuable of his works. In the same year appeared *Corollarium Generum Plantarum*, and a book extremely rare at the present day, his *Viridarium Cliffortianum*. Not until this year his *Flora Lapponica* was published; and at short intervals was passed through the press his *Critica Botanica*, which he dedicated to his friend, Prof. Dillenius. Other publications quickly followed, of which the most important are *Hortus Cliffortianus* and *Classes Plantarum* (1738), which practically forms the second part of his *Fundamenta Botanica* and contains a careful review of all the systems of botany from Caesalpinus (1583) up to Linné's

numerous, and his memory will be likely to last as long as there is vegetation upon this globe. Not only have botanists every reason to revere the memory of Linnæus, but gardeners also have gained much from his classification. As long as plants are cultivated, and it is necessary to speak of them, and write of them, even so long will some form of classification and nomenclature be necessary.

The bi-nominal system of nomenclature established by Linnæus, who gave every plant a generic, or family name, as its first title, and a second or specific name to mark its individuality, is the most convenient system science has known.

as in *O. Hallii*, bearing a great horse-shoe shaped blotch (the points at present occasionally broken off) upon a clear yellow ground. Around the apex is a marginal row of spots as in *O. Hallii*, with its inward roll in the centre. Crest as in *O. Hallii* with fewer, shorter filaments; column white, wings almost entire at edges except one thick cirrus; anther cap intermediate. The bulb is $2\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{2}$ inches, and developed a 16-inch spike with seven blooms. When a strong plant this will prove a fine addition to the yellow ground garden hybrids. *O. Hallii*, as a species, appears as strong as *O. Harryanum* in perpetuating its characteristics, undoubtedly because both of them are purer than either *O. crispum* or *O. nobile* from the absence of other species growing among them. In raising a race of hybrids from the "Lionel Crawshaw"



FIG. 136.—THE TWO-HUNDREDTH ANNIVERSARY OF LINNÆUS' BIRTH. VIEW OF THE MUSEUM AND "LINNÆUS" HALL AT UPSALA.

own time. There was a little longer interval before, in 1745, his *Oländska och Gothländska Resa* appeared, which was followed by his *Flora Suecica* and *Fauna Suecica*.

During the summer of 1746 Linné went to West Gothland, and, returning in the autumn, published shortly afterwards his *Westgota Resa*. At this time he came into possession of a valuable herbarium which belonged to Dr. Paul Hermann, and based upon this collection, he published his well-known *Flora Zeylanica*. His students' *Materia Medica* was published in 1749.

So this very active and prolific writer published within a few years a series of books which have retained their value and importance until the present time. Linné's labours were rewarded by many high honours, which were conferred upon him from many countries; his monuments and portraits are

NEW OR NOTEWORTHY PLANTS.

ODONTOGLOSSUM × LEO
(*O. Hallii* × *O. triumphans*, VARIETY LIONEL CRAWSHAY).

THIS is the first hybrid which has flowered, having this unique form of triumphans as a parent. It is from a cross made on March 8, 1901, and the seed was sown on June 28, 1902; the plant bloomed on May 16, 1907, upon the fourth bulb. The bulbs are intermediate between the parents in habit, and the leaves are similar to those of *O. Hallii*. The spike is more like that of *O. triumphans*. The flowers are of circular form with a rich yellow ground colour. The sepals have three rows of brown blotches as in *O. Hallii*, and the petals are marked by numerous spots arranged in a cluster all over the base, separated from the outer blotch as in *O. triumphans*; the edges are denticulate. Lip of the same form as in the male parent, the shoulders being a little recurved

variety of *O. triumphans* I shall be able to conclusively prove the influence of a marvellous form, as compared to that of an ordinary one, upon its progeny. *De B. Crawshaw, May 20, 1907.*

A BEURRÉ DIEL PEAR TRAINED AS A BUSH.

AT fig. 137 we have reproduced a photograph, kindly sent us by Mr. J. Udale, showing a plant of Beurré Diel Pear, which has been cultivated in the bush form. The photograph was taken several weeks ago in the experimental gardens at Droitwich, Worcestershire, and the subject illustrated is not without interest in the light of the discussion that is taking place in these pages upon the question of pruning fruit trees. We believe the specimen now presented has been brought into its present condition by the practice of a moderate amount of pruning, and the shape of the specimen and profusion of flower it bore are certainly satisfactory.

VEGETABLES.

BOLTING AND NON-BOLTING CABBAGES.

DURING the past few weeks complaints, such as were heard two or three years ago, have again been made of the erratic habits of autumn-sown and planted Cabbages. In some cases many from one batch have started to flower prematurely, whilst in others very few or none have so bolted. Why, under similar conditions, some thus bolt and others do not, presents a problem that Cabbage growers would gladly have solved. Some light has been thrown on the matter in two private gardens in Middlesex. In one case a good breadth of Cabbage plants raised from

Some two or three years since, Messrs. Sutton & Sons, Reading, made, in the early autumn, sowings of many well-known varieties of Cabbages, and they transplanted seedlings from each stock. Each variety was treated alike, and their habits noted in the spring. The results were published in the *Gardeners' Chronicle*, June 10, 1905, p. 354, and they showed that the primary cause of premature bolting was unfitness of the special variety for autumn sowing, although it may possess special and distinctive merit when sown in the spring. The same nursery firm have, during the past and the present years, been conducting similar trials, but on a larger scale. Many thousands of seedling Cabbages were transplanted from a sowing

far too late for spring Cabbages, and sowings were made of seed about the middle of September, the plants remaining in the seed beds and planted out in March, many of the large summer section which habitually bolt if grown earlier would then do so but very slightly. Cabbages, however, in June and July, have little attraction compared with the small, firm hearts obtainable in the month of April. Of the forty varieties thus tested at Reading, the few absolutely reliable non-bolters are "April," represented by several hundred of plants, every one having a perfect, firm, white heart; Flower of Spring, having leafage and hearts a little larger than "April," follows quickly, and is a perfect non-bolting stock.

Favourite, a variety equally useful for autumn as for spring sowing, is a capital succession Cabbage; then comes Early Market, Ellam's Early, Imperial, and Early Offenham. These are all reliable stocks, and the plants do not bolt. A former favourite, small, early Cabbage, Little Gem, seems quite left behind in earliness and quality of strain. This illustrates how much may be accomplished in the improvement of stocks or varieties by selection, a practice that is far safer with the Cabbage tribe than is intercrossing. Persistent selection has resulted in getting these early and reliable varieties, and selection still goes on at Reading, for any plant which seems to show advance is marked and induced to flower and seed in due course. Such fine old varieties, so admirable for spring sowing, as Early York, Sugar Loaf, Nonpareil, All-Heart, Heartwell Marrow, Emperor (of the Offenham type), Main Crop, Matchless, Defiance, Early Rainham, St. John's Day, Christmas Drumhead, Winning Stock, the Coleworts, Blood Red, and several others gave from 10 to 60 per cent. bolters; indeed, some, such as the Red Cabbages and Coleworts, had not one that showed true character. Most gardeners know that no plants are more difficult to keep absolutely true to character than are the members of the Brassica family. Coarse plants, when found in the seed beds, of recognised non-bolting stocks, should be pulled up and thrown aside. It is well to understand that in all stocks, and especially in those that are highly bred, there is a natural tendency to precocity of flowering.

A. D.

TREES AND SHRUBS.

VIBURNUM CARLESII.

Of recently introduced shrubs this promises to prove one of the best. Figures of the plant have appeared in Japanese plant catalogues and other publications, but it is only within the last twelve months that it has flowered in this country. In 1902 a small plant was received at Kew; this blossomed for the first time in the spring of 1906, and it is now, with one of its progeny, flowering again. *V. Carlesii* is a native of Corea and is quite distinct in general appearance from any other cultivated species. The largest plants at Kew are from 1½ to 2 feet in height, and the same measurement across. The leaves are more or less ovate, 2 inches or more long, with rather conspicuously-toothed margins and covered on both surfaces with a soft pubescence. The flowers develop during May: they are thick in texture, one-third of an inch across, white on their inner surface and pink on the outer. The inflorescence is flat, 2 to 3 inches in diameter, and it bears a strong resemblance to some species of *Rondeletia*. The flowers have a delicious perfume.

Experience seems to show that the species is capable of withstanding any ordinary winter without injury, for entirely unprotected plants in the open withstood the severity of the past winter without injury. It has been found to thrive best at Kew in light loam intermixed with a little peat. Cuttings root readily in the summer, but they are slow of growth for the first two or three years. W. D.



FIG. 137.—A WELL-TRAINED "BUSH" OF BEURRE DIEL PEAR.
(For text see page 326.)

home-saved seed of reputed varieties gave from 60 to 70 per cent. bolters. The assumption was that, as all the plants prematurely flowering showed coarse growth, the seed-bearing plants had been, through the agency of bees or the wind, impregnated with pollen from other varieties. It was specially interesting to note that a second planting from the same seed-bed gave not a single bolter. The inference is that when plants of a coarse or generally strong growth are found in a seed-bed these are the result of cross-breeding, and will flower prematurely, therefore they should be destroyed and not planted. In the second case a variety of high northern reputation gave 15 per cent. "bolters," and every one of these plants was coarse in growth. Here again, a second planting gave no bolters. Possibly it may be said that the earlier planting conducted to the bolting, but if that were so, not 15 per cent. but all the plants would have run to flower.

made on August 10 of forty types or varieties—not an exceptionally early date, and the transplanting of the seedlings was done on October 3. Another interesting feature of the trial was the observance of the effects of age of seed in the matter of bolting. Seeds of three, four, and five successive years' saving were sown and plants from each sowing were planted side by side. No differences were noticed in the matter of premature flowering, conclusive proof that age of seed has no effect in this direction. The primary object of August-sowing and early autumn-planting of Cabbages is to secure hearts, firm, and fit for cutting several weeks prior to the time when Whitsuntide Cabbages are ready. For that purpose there has been bred a race of small-hearting but very precocious varieties, which, planted rather closely together on good soil, produce their small, white and firm heads early in April and onward. Were it desirable to obtain larger heads in June, obviously

THE TRILLIUMS.

THE Trilliums, a small group of American woodland plants, are almost solely represented in gardens by the popular *T. grandiflorum*, the other species being badly neglected as garden plants, despite the fact that many are showy subjects, others are sweetly scented, and all possess some desirable attributes. The Trilliums are very hardy and will thrive splendidly in a rooting medium of peat, leaf-soil, and sand, or the sweepings of country roadsides after it has been stacked for the purpose of killing weeds. They should be placed in the coolest position the garden affords, and be protected from searching winds in March.

With the exception of *T. petiolatum*, which is scarcely worth growing, and *T. Smallii*, a new species (?) from Japan that I have not succeeded in flowering, all the species I am acquainted with are desirable subjects for the rock garden, bog garden, or the informal garden in which water is introduced, or in which cool sites could be made for their reception. It is astonishing what a wealth of flower and foliage Trilliums produce in a cool, rich soil, and once well provided for, they will outlive the planter if occasionally top-dressed and not otherwise disturbed. Shade is desirable where there is lack of moisture, and not otherwise.

SPECIES AND VARIETIES.

T. CERNUUM is a pretty nodding species whose petals are white and measure an inch across, the flower being very fragrant. In all other respects it is a tall, lax *T. grandiflorum*, and inferior to that species as a garden plant.

T. ERECTUM has dark green foliage, purplish stems, and reddish-purple flowers, whose petals are 2 inches across. It exceeds a foot in height when well grown. As a garden plant it is surpassed by its variety *album*, a very pretty plant whose petals are white, tinted with olive, and with a livid red-coloured throat. *T. erectum* is dull in colour and suggestive of an Aroid in its petals and scent, but the variety *album* is showy and refined. In the West of England and Scotland many old-established clumps of the white *erectum* grow out of recognition, yielding flowers as large as those of *T. grandiflorum* on stems 2 feet high.

T. ERYTHROCARPUM is an exquisite little plant that everyone admires. It has attractively spotted ovate leaves in the usual triple arrangement, and showy white flowers that are heavily blotched with crimson at the throat. It is a little difficult to manage, and it enjoys a drier condition of soil than the others. When it has been established for three years it makes healthy clumps 18 inches high, and produces numbers of its solitary inflorescences.

T. GRANDIFLORUM is probably known to every gardener. It throws up clusters of pale green leaves that are bronze-tinted when young, each stem bearing a lonely, nodding, white flower measuring 4 inches across the perianth. As the flower ages a slight suffusion of pink is apparent, and it is at this stage markedly fragrant. It is an accommodating plant and does well in a woodland glade in which is an accumulation of leaf-soil, and it loves moisture in plenty. In cool and sheltered gardens, it reaches a maximum height of 3 feet in the West of England, but in colder counties 18 inches is about the average. One can do much to encourage its growth by choosing for it sheltered corners of a rock garden, or a recess by a woodland walk where winds are tempered. Few plants lend themselves to what is termed "naturalising" better than this Trillium. It is more refined than gaudy, and as such is to be welcomed amongst woodland scenery. Numerous geographical forms are recorded that differ in minor features only. The best and most distinct garden sport is the variety *roseum*, a lovely variation from the type and whose flowers open a blush-pink, deepening in tint to rose ere they fade. I once grew a collected form of *T. grandiflorum* that showed

hybridity with *T. stylosum*: it was midway in structural and colour details between the two species, but it died after flowering, as the result of injury by eel-worm. *T. grandiflorum* and *T. stylosum* are found together in some districts.

T. NIVALE.—This is in appearance a diminutive *T. grandiflorum*, and it flowers as early as March in the vicinity of London. It has short, pure white petals that are lance-shaped and 1½ inches in length. The leaves are ovate, barely raised above the soil, and spotted with purple. The species is adapted to the rock garden, where wind-shelter can be given to it early in the year, and its low habit will accord with its surroundings. It will grow in any soil and does not require the amount of moisture necessary to most of the other species.

T. OVATUM is a dwarf and distinct plant whose three leaves form a complete circle around the stem, and they are produced but an inch or two above the soil. The flower is stout and but little raised above the leafy verticil. The petals are 1½ inch in length, pure white when they first expand, developing a tint of wine-red with age, particularly at the base. Its greatest value is in the rock garden, and it should have the shelter of a boulder for its earliest flowers.

T. RECURVATUM.—This is a singular species, and one whose flowers and leaves are remarkably curved and undulating. It grows to a height of 18 inches, and develops lax, blistered, wavy leaves that are marbled with pale purple on a dark green ground colour, and purplish footstalks. The flowers are raised above the leafy verticil as in *T. grandiflorum*. The petals are crimped, much recurved, 3 inches long, lance-shaped, the margins incurve, and they are coloured a ruddy purple, against which the chrome-yellow anthers appear in vivid contrast. The flower is sweetly scented when it first opens, but later is suggestive of *Arum dracunculoides*. It is a plant of curious appearance, and there is a rugged disproportion of its parts that add to its grotesqueness. Nevertheless, it is an attractive species.

T. SESSILE is a quaint-looking plant, whose varieties alone are possessed of real decorative value. The type has broadly ovate leaves in the usual verticil of three, and the foliage is coloured sage-green, with numerous paler green, and purple spots. The flowers are literally composed of three chocolate-tinted straps that arise from the centre of the leafy verticil, which is 5 or 6 inches in height. The inflorescence does not possess much beauty, but the flowers diffuse a delicious fragrance that recalls the odour of *Magnolia Candollei* in the Palm House at Kew.

The variety *T. s. CALIFORNICUM* has leaves spotted as in the type, and white flowers that are claret tinted in their lower halves. Here again a rich fragrance is diffused for weeks around the flowering plant. This variety is very vigorous in habit, and in favoured localities will form a thicket 2 feet through and 3 feet in height, every stem supporting its cluster of leaf and flower. The petals remain for a long time on the plant. Another variety, *T. s. album*, has spotless green leaves and broad petaled flowers with a suffusion of yellow at the base of each petal. It is a very desirable plant. *T. sessile* and its varieties flourish in a bog or marsh.

T. STYLOSUM will grow wherever *T. grandiflorum* thrives, and it has almost equal ornamental value. The flowers, however, are not so large as in that species, the petals being narrower and reflexed, but there is charm in a thriving colony of *T. stylosum*. Its leafage is bronzed-tinted when young, becoming dark green with age. The flowers are rose-pink in the majority of cases, but the colour varies considerably. All are beautiful, but all are not alike. I well remember *T. stylosum* growing in the moist leaf-soil of a Cornish garden. Its petals had broadened to such an extent that it was recognised with difficulty. On the east coast of these islands it rarely exceeds a foot in height, but on the west coast 2 feet is the minimum.

Those persons who have moist gardens surrounded wholly or in part by woods will find the Trilliums tractable, easy of culture, and a source of much enjoyment, but in dry or smoky or calcareous gardens they are "a peck o' trouble" to cultivate. *G. B. Mallett.*

NOTICES OF BOOKS.

* SEASIDE PLANTING OF TREES AND SHRUBS,
By Alfred Gaut.

No more troublesome problem confronts the gardener and woodman near the sea than the planting of the exposed positions under his care. We have abundant evidence of this in the number of enquiries that reach us on this matter. We welcome, therefore, any contribution to our knowledge on the subject; especially when it is by one who has had so many opportunities of observation, as the author of this book has had. Mr. Gaut has for some time been engaged in giving lectures and demonstrations in horticulture in (among other places) the seaside districts of Yorkshire. Nowhere in England, perhaps, are the conditions generally less favourable to the establishment of an arboreal vegetation than they are on that stormy, wind-swept coast. Success attained in such places may well be regarded as affording a reliable guide for use in any other part of the kingdom. However much local conditions may vary, the leading features of the problem are the same.

The influence of the sea on both climate and vegetation is in itself a beneficent one. We see proofs of this in the wonderful variety of plants which can be grown near the coasts better than elsewhere in the British Isles. This, however, applies to the valleys and sheltered tracts. The problems of seaside planting really only arise where exposed headlands and broad, unsheltered areas are in question. Even then it is not the sea itself, so much as the violence of the winds that come from it, which constitutes the evil. In such positions as these the essential thing is to plant a shelter-belt. When once a permanent screen has been formed, the first great difficulty has been overcome. Often a beginning can only be made by erecting a "dead" fence of some kind—it may be of wood, or stone, or earth—behind which the first plantings can be made. The conditions then become more and more favourable as each successive inland belt is planted.

For these reasons we are inclined to regard Mr. Gaut's chapter on "The first line of exposure" as the most valuable and important in his book. When once vegetation has been established that will bear the brunt of the storm, the choice of trees and shrubs to grow behind the protection thus afforded is much more extended. The list Mr. Gaut gives of such plants might, indeed, be almost indefinitely enlarged. Readers will be more interested to know what subjects the author recommends to plant in the "first line of exposure." This part of the work, which deals not only with the choice of trees and shrubs to plant, but also with such matters as fences, preparation of the soil, and planting, makes the book of genuine value to all who have to confront the problem of seaside-planting.

Mr. Gaut's nomenclature is good and careful. We are gratified to see that he does not perpetuate the old error of calling Spruces "Abies," and Silver Firs "Picea." There is only one error of any importance that we have noticed. This is in reference to the well-known *Lycium*, which is a most useful shrub to plant in the most exposed places by the sea. The author alludes to it as *Lycium barbarum*, which is really a native of North Africa, and, if it exists at all in this country, is exceedingly rare. The shrub to which Mr. Gaut alludes, and which is so frequently seen near towns on our coasts, is *Lycium chinense*. This, however, is not a great matter. The book is a worthy addition to the gardener's library, and it is illustrated from photographs taken by Mr. Frank Sutcliffe.

* Published by George Newnes, Ltd. (Country Life Library), pp. 101, with figs., price 5s.

MARKET GARDENING.

ASPARAGUS-CULTURE IN THE VALE OF EVESHAM.

THE fertile Vale of Evesham is noted as much for its Asparagus as for its Plums, and certainly no crop of recent years has found more favour with growers than the Asparagus. It is no exaggeration to say that the acreage around Evesham under Asparagus is five or six times as great as it was fifteen or twenty years ago, and it is no less satisfactory to record that, despite the increased quantity which is sent to market, the price has not declined, but rather it has improved. A rough estimate by one of the more prominent growers and dealers in Evesham estimates the acreage now under cultivation in the Evesham district at from 1,500 to 2,000 acres, and it is certain that no district in England produces a finer sample. In the borough of Evesham itself very little is grown, the most favoured localities being those round Badsey, Bretforton and Wickhamford, where a great quantity of the vegetable has been planted during recent years. Three or four years ago Badsey suffered very severely from Asparagus blight, but

The illustration at fig. 138 represents a packing shed of a large Evesham firm, who carefully dispatch their Asparagus packed in cardboard boxes. In the tying and arranging of the "grass" women are generally employed, as they are found to be quicker with their fingers and their touch is lighter, a consideration when the delicacy of the "buds" is considered. In recent years much more care has been taken than formerly in grading Asparagus for market, and there is a less tendency to place inferior sticks in the middle of the bundle. With all classes of produce there is a diminution of the reprehensible practice of "topping." H.

THE PROPAGATOR.

WARM-HOUSE PLANTS.

In May, sowings may be made of the seeds of Palms, which should have been previously stratified in a bed of loam placed under the stages or arches supporting the same in a plant stove. Here the seeds are brought by moisture and warmth to the point of germinating, and they will then be ready for placing in the seed pots at an inch or two apart, according to size. The mix-

75° Fahr., and top heat a few degrees higher. The cuttings of the species of Euphorbia make fine potsful if placed to the number of four or five in small 48's filled with the same kind of mixture, striking them in the same degree of heat, and affording one shift into 6 to 8-inch pots when well rooted. The cuttings may also be struck singly in 60's, and afforded a shift into 32's later on.

Aphelandras of species, may be increased by cuttings when seeds are not employed to increase the stock. The cuttings may be rooted at this season, similarly to Poinsettias. Growth having become general with Codiaums, Stephanotis, and Hoya, these favourite hothouse subjects may be increased by means of cuttings. No difficulty will be encountered in their rooting if a common hotbed, with a temperature of 70° top heat, and of 80° bottom heat, or a propagating pit with a hot-water apparatus, be used for their reception. In the hotbed-frame no bell glasses are required—indeed, unless the moisture were wiped out of them night and morning they would induce decay in the cuttings—but in the more airy pit or house, bell glasses, hand-lights, or close cases must be provided.

COOL-HOUSE PLANTS.

Cuttings of Fuchsias may be struck on bottom heat in a frame or in the propagating house, and if the house is airtight no further covering is required by the cuttings.

Pelargoniums of the show and fancy sections can be struck in pots, singly (the best plan) or to the number of four to six in 60's without bottom heat, if nearly matured shoots be taken. These and the scented-leaved species from the Cape, when taken in a half-ripened state, may be afforded bottom heat of 70° Fahr. In the mature state later in the year they will not require other than sun-heat in their propagation. Plants of Zonal varieties struck in this month are useful for successional flowering in the autumn.

Chorizemas now strike easily from half-ripened shoots, taken with a heel of older wood, in peat and sand, with a surfacing of pure sand, in warmth of 55° to 60° Fahr. Bell glasses should be used to cover the cuttings.

Take cuttings of young shoots of both Muraltia and Polygala now that growth is active, and see that each possesses a heel of older wood. Remove the lower leaves so far as the cuttings enter the soil. The rooting medium should consist of two-thirds peat and the remaining portion coarse, clean sand. Afford a regular degree of moisture to the soil, and let the warmth be from 55° to 60° Fahr. The cuttings will form roots in about one month from the time of their planting.

OUT-OF-DOORS SUBJECTS.

This is the best season for taking up the Violets that have been grown in frames for supplying flowers, and selecting the strongest runners or offsets for planting out for next winter and spring flowering. If each runner be furnished with a number of young roots, its progress will be rapid, if proper care be taken in selecting the sites of the summer beds, runners picked off, weeds kept down, and red spider kept under by copious waterings and syringing in dry times. Rootless offsets should be saved if stock be required, dibbling them in in a shady, moist place; and, if not wanted for frame culture, their offsets, if any, may be left on the parent plants.

The older portions of the plants that have borne blossoms may be thrown away, if not urgently wanted. Prepared young Violet plants in excess of frame requirements make fine floriferous beds and lines in the vegetable garden.

Rare species of Lilies, of which it may be desired to increase the number, should have the flower stems carefully laid on the soil and thinly covered with a layer of leaf-mould, peat, and sand; doing this when the flower buds are



FIG. 138.—ASPARAGUS-CULTURE AT EVESHAM.
(Packing the "grass" for market.)

this has now disappeared, the old beds where it was prevalent having been broken up. The land in these localities is for the most part a stiff, heavy clay, and here the beds will stand and bear well for as long a period as twenty years. Some of the land which is now carrying remunerative crops of Asparagus and Plums was a few years ago worth very little for ordinary farm purposes, and tenants could not afford to pay the small rents then charged.

This year the persistent cold weather has retarded the crop greatly. The lateness of the crop may not, however, prove a bad thing for the growers, for if it developed in bulk early it would have to compete with the foreign article, with a consequent reduced price. Although most of the private consumers will have English Asparagus if they can get it, the hotel and restaurant-keepers purchase the cheaper article, and, after all, these are the people who take the bulk of the crop. It is probably a fair computation to say that Asparagus ranging in weight from 3½lb. to 4½lb. per bundle (which includes 120 buds) will average all through the season as much as 1s. 9d. per bundle.

ture that best suits the plants consists of two-thirds loam and one-third leaf-mould, and sufficient sand to afford porosity. The drainage material should be sufficient, but not excessive in quantity. The seeds of Cycads and Bromeliads may be sown at this time in a similar mixture, in pans or shallow pots, and at about their own depth in the soil, placing the seed pots, &c., in a warm pit or hotbed-frame, having a top heat of 70° Fahr. The spores of exotic Ferns may now be sown in pans or on thick tiles partially immersed in a pan of water, a ready mode of getting these extremely minute spores to vegetate, and it obviates the use of the syringe or watering pot, which, unless used most carefully would wash away or displace the spores. Vinca rosea, V. oculata, &c., when raised from seeds sown in heat in May, make useful little subjects that flower in the autumn following. Cuttings of both Poinsettia pulcherrima and Euphorbia jacquiniæflora may be inserted, the former in hard peat two parts and sand one part, in pots placed under bell glasses or hand-lights, affording them a bottom heat of

appearing, and removing all of these that can be detected. This will cause bulbils to form in the axils of the lower leaves.

SEEDS.

In prepared beds in a part of the garden enjoying sunshine for half of the day, seeds may be sown thinly and regularly broadcast, of Pansies, Antirrhinum, Stocks, and Wallflowers for spring flowering, and of many kinds of hardy perennials and biennials. The seeds will germinate more regularly if they are covered with rich soil, sifted over each bed or patch in quantity commensurate with the diameter of the seeds. This plan of seed sowing is for most things better than drills, hoeing-in, or raking-in, as obviously the depth to which the seed is buried is more regular. If the weather is showery, the seeds will be securely covered; otherwise, a slight firming with the spade or a smooth piece of board is called for in all but the heaviest kinds of land.

The seeds of the Chinese Primula may now be sown for early winter flowering, employing a mixture of equal parts peat, leaf-mould, and loam, together with a moderate amount of sand. If new seed pans are used for this sowing, let them be well soaked before putting the compost into them, or many seeds near the sides will, from alternating dryness and wetness in the mould, fail to grow, or put forth only a crippled growth. Until vegetation takes place, a warm bed is the best place for the seed pans, at once removing them to a cold frame on the cotyledons appearing above the surface. *F. M.*

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Campanula pyramidalis.—Seeds of this attractive Campanula should now be sown in pots or pans of light, sandy soil, placing them in an atmosphere of intermediate temperature. As soon as the seedlings are of sufficient size to be handled conveniently, prick them out into pans or boxes, and place them in a cold frame. They should subsequently be potted up singly. After they have recovered from the check caused by the potting process, place the plants outside on a bed of ashes, re-potting them when required into strong, loamy soil. In winter, during severe weather, the plants will need the protection afforded by a frame. Do not coddle them, but, unless they are wanted in flower early for any particular purpose, let them be placed outside again early in April. At the present time last year's seedlings will be throwing up strong flower-spikes, and they should be afforded occasional top-dressings of manure, also plenty of water, as the pots are filled with roots. Secure the flower-spikes by tying them to stakes, as they are liable to get damaged by winds. Remove the plants to a position under glass as soon as the flowers begin to expand. The strain known as "compacta," raised at Syon House, is excellent for use in company with the taller-growing varieties.

Bouvardias.—Keep the young plants growing in an intermediate degree of heat, pinching the points out of the shoots occasionally to induce a bushy habit, and repotting the plants, when necessary, into a compost consisting of equal parts turfy loam and leaf soil, and some sand. The old plants which were cut back early in the spring should also be potted on, unless the planting-out system is practised, and this is successful in warm localities. If the latter plan be preferred, select a sunny and sheltered position on a south border for planting early next month, or, better still, a frame, where the plants could have the benefit of the glass to give them a start, dispensing with the lights altogether when they have become established. Pinch the shoots once or twice, but not too late in the season, and syringe the plants frequently in hot weather. These will require to be lifted and potted in September, cutting round the ball carefully with a sharp spade about a week previous to the lifting. After potting, water the plants thoroughly, and place them in a shady position for a few days until they have sufficiently recovered from the check, when they may be gradually accustomed to full sunshine again.

General work.—Seeds for the main batches of Primulas and Cinerarias should now be sown in sandy soil, which should be moistened with water before sowing the seed. Place the pots in a cool house or frame, and keep the soil uniformly damp, as dryness in the seed pan is often fatal to the germinating power of small seeds. Plants raised from the earlier sowings will now be ready for pricking off, after which they should be returned to the frames, placing them near to the glass and slightly shading them in bright weather.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Penarrow, Cornwall.

Bedding-out.—Before starting any work on the flower beds which are set in grass, let the lawn mower be run around them and the edges be clipped. Plenty of planks should be ready to hand in order that the grass may be preserved. Those beds which are occupied with spring-flowering plants are mostly ready to be cleared. The Wallflowers may be consigned to the rubbish heap. Such plants as Aubrietias, Arabis, and Alyssum saxatile, after lifting, should be split up into small pieces and planted in rows in the reserve garden. If given proper care and attention, they will provide good plants for use next autumn. Should the weather be hot and dry before the plants have recovered from the check of removal, let branches of Beech tree be stuck in the ground between the rows to shade them, and the plants be sprayed with water towards the end of hot afternoons. London Pride (*Saxifraga umbrosa*) and Primroses are amenable to similar treatment. Bulbs should be carefully lifted, bestowing especial care upon those whose foliage is still green, or partly so, planting them in a fairly sunny spot, and labelling them. When two sets of plants follow one another in such quick succession as they do in the flower beds, deep digging is essential. As was directed in previous calendars, each bed will need to be "dressed" according to the kind of plant that will be planted in it. The Wallflower is such an exhausting plant that the beds in which they have been growing should receive an extra amount of manure. It is an excellent practise to mix a good quantity of bonemeal with the top foot of soil just before planting is done. The soil should be lightly trodden and raked level. Should hot sunshine prevail it will be wise to defer planting work until three or four o'clock in the afternoon, and, under these conditions, it will do good to give the beds a good watering as each is finished, having previously cleared away all empty boxes or pots and made up the edge of the bed and swept the grass clean. As suggested for the reserve garden, the beds may be lightly shaded with tree branches.

Annuals.—The seedlings from the first sowing out-of-doors are now in a fit state for thinning. This should be rigorously carried out, for it is better to slightly err allowing too much room than too little. After the thinning has been done, hoe between the rows, and if slugs are suspected dust the plants with soot.

Border Carnations should be lightly tied up to slender stakes of a neutral colour. A dressing of any approved artificial manure will greatly assist flower development.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bilton, East Devon.

Cherries.—A minute examination should be made on each tree for the destructive black aphid, and even if none is found, it is advisable to give the trees a dressing with Quassia extract, as previously recommended for the Peach. A tiny black maggot also attacks the young growths of the Cherry, and soon cripples the points of the shoots, and often injures the branches that are required for training in as the fruit-bearing wood for next year. These maggots curl themselves in the leaves, and hand picking is the best remedy. Disbudding of the Morello, especially trained trees, should be practised more frequently than it is, as these trees produce far more shoots than are required, and the removal of them later in the summer by cutting is detrimental to the ripening of those shoots from which will be formed the bulk of next season's crop. Shoots on the face of the branches and next the wall are those that should be first removed, retaining

any on the sides of the fruiting wood, as in the case of the Peach and Nectarine. The removal of these superfluous growths may be done as soon as they develop, but care must be taken that the young fruits are not removed with them. Leading shoots need no stopping, save in the case of those that will be cut out at the winter pruning. Any young wood approaching grossness and likely to cause weakness in other parts of the tree should be pinched quite early. Trees growing in hot, dry positions should have a layer of about 1½ inches of partly-decayed manure placed over their roots, extending it to a space of 4 feet or more from the stem of the tree. While the above remarks are intended for the Morello, they are, in a lesser degree, applicable to other Cherries.

Mulchings.—Before applying a mulch of any sort the surface soil should be lightly forked. Early mulchings are highly beneficial to Pears and Apples growing on the Quince and Paradise stocks respectively, and on light, hungry soils it would be well to cover the manure with a little soil so as to retain the manurial elements for as long a period as possible. All weeds—and there is a host of them this spring—must be removed before these manures are applied.

Fruit prospects in this locality are particularly good. Peaches, Apricots, Plums, Cherries, Gooseberries, and Currants are all carrying good crops of fruits, and several varieties of Pears are well fruited, but many of these latter fruits drop towards the end of May owing to the Pear midge. Strawberries and Raspberries promise well.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Peas.—There have been even greater improvements made in raising new varieties of dwarf-growing and early-fruited Peas, than in main-crop varieties, for it is only a very few years since the early-fruited section consisted almost entirely of white and round seeded varieties. Some of the newer varieties are approaching the later fruiting type very close in regard to colour, size, and flavour, and it is a difficult matter indeed to particularise any one or two varieties. Little Marvel, that was sown in boxes in November and planted out in a late Peach-house in February, is now carrying a good crop of well-filled pods. Our first picking was made on the 18th inst. Closely following is Green Gem, that was sown about the same time in a cold frame, and these will be ready about the 28th inst. after which date the varieties already mentioned will be yielding on the outside borders. These are well "backed up" by crops raised from successional sowings, therefore a continuous supply will now be maintained throughout the summer. Continue to sow seeds of good main-crop varieties, which must soon be followed by later sorts, including the Gladstone, Alderman, and Autocrat, the last-named Pea being a splendid main-crop variety for cultivation during a dry season.

Potatos.—Old tubers are fast deteriorating in quality, and they should be thoroughly examined and picked over, rubbing off any growths they have made. Although this work will occupy much time, it is a most necessary proceeding, for, if allowed to make roots or top growths, the tubers soon get "sweet" and are unfit for cooking purposes. There must yet elapse a considerable time before new Potatos will be anything like a general supply. A close watch must still be kept on Potatos pushing through the ground, drawing the soil up to them each day, for it is not yet too late in the season for frosts to injure them.

Marrows.—Plants raised from seeds sown early in the season and that have been grown in heat as advised in previous calendars, should now be giving some returns. If the yield is not great, at the same time the Marrows at this time of the year are very useful in making a little change. Later plants, to provide the main supply, should now be planted in cold frames, or under hand lights, on prepared beds, the bush form being very useful, as it can be grown in a more limited space. Plants of the varieties that are being hardened, may also be planted in the open, giving them a little protection at night if frost appears likely to occur.

Salads.—Frequent sowings of the various salads should be made, as during hot weather, unless plenty of water can be applied, many plants will "run" to seed very quickly.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Cattleyas.—Plants of *Cattleya Mossiae*, *C. Mendellii*, *C. Schilleriana*, *Laelia purpurata*, *L. tenebrosa*, and hybrids of these species that are showing their flower buds will require a little more water at the root until the flowers are fully expanded. *C. Bowringiana* is still dormant, but so soon as growth recommences the plant should be placed at the warmer end of the house, and be gradually accustomed to copious and more frequent supplies of water at the root. The distinct *C. Lawrenceana* is also now at rest, having just passed out of bloom. I was recently informed by a competent authority, who has visited the *C. Lawrenceana* district on several occasions, that the plants grow at an altitude of about 3,000 feet above sea level, where they are fully exposed to the sunshine. The temperature at night averages at about 60°, and during the day 75°. I was advised that while the plants are at rest they should be placed in a warm and light position in the *Cattleya* house, and be kept fairly dry at the root, a slight shrivelling of the pseudo-bulbs doing no harm. During the growing period a similar position in the cooler atmosphere of the intermediate house will be more suitable.

Thunias.—The different varieties of *Thunia* will now have their flower buds well advanced, and if it is desirable to propagate any of them, now is the best time for the operation. Take off the back growths, cutting them at the joints into lengths of about 6 inches or 8 inches, and inserting them firmly as cuttings into well-drained pots, using a mixture of sphagnum-moss and coarse sand. Place them in a dry position on a shelf in the warm house, and spray them frequently with water. When the young shoots appear grow them on as quickly as possible, but do not disturb the plants by repotting them, until next spring.

Calanthes.—Such evergreen species as *C. veratrifolia*, *C. masuca*, &c., that require repotting, should be attended to soon after the plants pass out of flower. Being strong-growing, free-rooting plants, they require rather large pots, which should be made one-third full with drainage material, placing over this a thin turf with the grass side downwards. A compost consisting of fibrous loam three-fourths and leaf soil one-fourth will be suitable for use, if some broken crocks and silver sand be mixed with it. Make this compost moderately firm about the roots and leave a good space on the surface for water. For some time only small quantities will be needed, but as the growths develop and roots become numerous, the supply should be considerably increased. Place the plants in a shady corner of the *Cattleya* or intermediate house, and keep them down upon the stage, as they do not succeed so well if the foliage is near to the roof glass. The cooler-growing varieties as *C. japonica*, *C. j. alba*, *C. discolor*, *C. citrina*, &c., may also be repotted at this time. Pot them in the same mixture and give them plenty of root-waterings from the time they commence to grow. Brown scale is sometimes very troublesome to these *Calanthes*. The pest must be eradicated by timely sponging, and by employing the usual vaporising process.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

The vinery.—Black Hamburg and Madresfield Court Grapes in late houses will now be ready for their first thinning. Begin by carefully tying up the shoulders of the bunches with thin strips of matting, and always commence the thinning at the point of the bunch, and work upwards. Remove all small berries. Maintain a warm and humid atmosphere in the house at this stage of the vine's growth, and close the structure early in the afternoon. Damp the paths and the borders once in the morning and again in the afternoon. The night temperature should be maintained at 65° Fahr.—the day at 85°. Admit air early in the morning as soon as the temperature rises to 70°. If the weather is mild, allow a little air to enter through the top ventilators; this will prevent the bunches growing too loosely, a condition of growth favoured by excessive heat and moisture. Test both the inside and the outside borders, and if they are dry, give a good soaking with warm manure water.

Muscat Grapes, that have just finished their stoning, will require very careful attention, as they are liable to scalding at this stage. If the weather is hot, let the ventilators of the house be opened more freely. If any signs of scalding is noticed, lower the day temperature of the house to 80°, and keep the night temperature at 70° with the aid of the hot-water system, but close the valves in the morning. Open the top ventilators a little at night time, and admit air freely in the afternoon. Reduce the amount of moisture, for a high, dry temperature at night time, with a cooler and dry atmosphere by day, is the best treatment to prevent scalding. When the fruits of later vines, including *Lady Downes*, *Alicante*, and *Gros Maroc*, have set, the temperature of the house should be lowered to 65° at night and to 80° by day. Damping should be resumed to maintain a moist atmosphere. Admit air by the top ventilator only, and apply the ventilation early in the morning. It will now be necessary to thin the bunches on each vine, leaving always the best and the largest, but preserving a few more than are required for the crop; these extra bunches can be removed later. Pinch and train in lateral shoots where space exists for them. Be on the watch for red spider, and should any be found sponge the leaves at once with soft soap and hot water, on both sides. Should this pest become in the least established, syringing must be resorted to every afternoon.

Tomatos.—The different batches of these plants are now making good growths, whether planted in pots, boxes, or in borders. Stop the leading shoot by pinching the point out of it as soon as it has grown to a desired height. Rub out all lateral shoots as soon as they appear. Afford manure water to any plants on which the fruits are swelling. Maintain a dry, airy atmosphere in the houses, and admit a little outside air at night-time. The temperature by day should be 70°; by night, 60° to 65°.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Aquatic weeds.—One of the greatest difficulties to be faced in the proper maintenance of ornamental sheets of water, is the destruction of the aquatic weeds with which such waters are apt to become overgrown. Where it is deep, little trouble as a rule is experienced, but in still waters, such as those in lakes, ponds, and canals, numerous sorts of weeds will grow to the surface, even from a depth of 7 to 8 feet. Where lakes or ponds are used for the purpose of bathing, boating, fishing, or model yachting, it is very essential to get rid of such plants as *Myriophyllum*, *Potamogeton*, and aquatic forms of *Polygonum*, or, at the very least, to keep them a good distance below the surface. How to do this satisfactorily, and at the same time economically, is a question which requires much consideration.

Cemented base.—The remedy often recommended in the case of small ponds is the construction of a concrete bottom, but even then such plants as *Spirogyra* and similar water weeds—which require no rooting medium—very often make ponds of this description quite as unsightly as those which require a natural soil bottom. Even vascular water plants soon infest a pond where sediment has commenced to collect on the cemented bottom, so that the use of this material cannot be regarded as a cure for weedy ponds.

Use of rakes.—In large ponds and lakes, weeds are often destroyed by being dragged out by means of iron rakes used from flat-bottomed boats. This at best is a most unsatisfactory method of dealing with them, because a large percentage pass safely through the teeth of the rake, and are left undisturbed; also, the stirring up of the mud at the bottom, which must inevitably take place in attempting to get out the weeds, is exceedingly detrimental—especially in hot weather—to such fish as trout, should they be present in the water.

Cutting with scythes.—Cutting the weeds from boats with scythes is another plan sometimes adopted, and although much cleaner than the "raking-out" process, it is too tedious to be recommended for general use—especially where a large area has to be treated.

The best method.—The very best and cheapest method of keeping down aquatic weeds with

which I am acquainted, is one invented by a gentleman in the Isle of Wight. The process enables one to cut the weeds at a given depth below the surface of the water. This is effected by means of a semi-circular, double-edged knife, connected to a long iron bar and affixed to the stern of a flat-bottomed boat. By means of a handle attached to the iron bar, the knife is moved with a circular motion, and when it comes in contact with the stems of the weeds, they are cut, and being detached from their roots float to the surface. The knife blade is so arranged that it can be lowered nearly five feet into the water or raised to within an inch of the bottom of the boat. The boat can be rowed to and fro in parallel lines (similar to the method adopted with a mowing machine in mowing a lawn), and the whole area of a lake or pond may be cleared of weeds in a very short time. After they are cut they can be collected in a barge and carted off to the manure heap, and when completely rotted they will be available for use upon the land.

The process is analogous to the mowing of grass, and, like that operation, it has to be undertaken several times during the season. As soon as the temperature of the water begins to rise in spring, aquatic weeds commence to grow. It is necessary to start cutting sufficiently early to keep the weeds from coming near enough to the surface to interfere with any of the sports or pastimes for which the water may be used.

THE APIARY.

By CHLORIS.

Queen wasps.—These undesirable insects may often be found in the warm quilts over the brood chamber, and a sharp look-out should be kept for them there.

Preparing for the honey to flow.—It is the common practice of beekeepers to put off getting ready until the honey flow is in full swing. Last year two neighbouring beekeepers, with equal opportunities, may be cited as examples of preparedness and unpreparedness. The one who was prepared and whose colonies were not so strong, got over 100 lb. of splendid honey fit for any show table, whilst the other got nothing, for there was only an early flow, the later one being a complete failure. How, then, can we be ready? Have all the shallow frames fitted up and ready to pop on as soon as the tops of the combs in the brood chamber are showing white cappings. If some drawn-out combs are at hand, so much the better. Perhaps some beekeepers may not use shallow frames, but it will pay them to put these on first, for sometimes bees will swarm, sooner than work in sections.

Preparing sections.—When this task is delayed until the last moment, many broken corners result, and a consequent loss of temper attends it. Take a number of sections in the flat and well wet the joints with a good supply of boiling water, piling them one on the other to make them retain their moisture, and when the wetting process is complete overturn the pile so that those first moistened may be used first. Whilst the corners are soaking you may, with great advantage, cut the foundation, which should be "extra thin weed," and may easily be done by aid of a piece of wood cut as a gauge. Cut full sheets, for it is no advantage to use starters; much valuable time is lost, which would more than pay for the full sheets. Fold the sections quite square, for nothing looks worse than ill-folded sections, and let the foundation protrude half-inch above the top, if split top sections are favoured, and leave a space at the bottom to allow for stretching. The foundation should fit well at the sides and be quite secure at the top. If the section has no "split top," a little glue will secure the wax as firmly as anything, but there must be neatness, or the sections will present a messy appearance. If these points are attended to, the sections will fit well in the rack, and will be well filled, so that each one will weigh a full pound. See that the sections are pressed tightly up and separated by dividers. If any spaces are left they will be filled with propolis, and consequently provide more work when they are being prepared for sale. When putting on sections, do not forget to wrap them up warmly, both above and around the sides, and if a sheet of brown paper be placed between the quilts, it will aid materially in keeping up the necessary temperature.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, MAY 27—
Annual meeting and dinner of the Kew Guild at Holborn Restaurant. Dinner at 7.30 p.m.

TUESDAY, MAY 28—
Roy. Hort. Soc. Sb. in the Temple Gardens, Thames Embankment (8 days).

WEDNESDAY, MAY 29—
Annual meeting of Brit. Gard. Assoc. at Essex Hall, Essex Street, Strand, 7 p.m. Public Conference after the annual meeting.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—56°8'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 22 (6 P.M.): Max. 44°; Min. 59°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 23 (10 A.M.): Bar. 29.7; Temp. 61°; Weather—Cloudy.

PROVINCES.—Wednesday, May 22 (6 P.M.): Max. 58°, London; Min. 46°, Scotland N.

SALES FOR THE ENSUING WEEK.

TUESDAY—
Duplicate Plants from the "Oakwood" collection of Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.80.

WEDNESDAY—
140 Rare and Magnificent Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 2.

THURSDAY—
500 Imported *Odontoglossum crispum*, 150 Hybrid *Cypripediums*, 50 Imported *Phalenopsis*, and various valuable *Odontoglossum crispums*, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.
Choice Ferns, Geraniums, Carnations, Begonias, Pansies and other plants, also Palms and Standard Bays, at 12; 100 dwarf and rare Japanese Trees and Flowering Shrubs at 8, at 67 & 68, Cheapside, E.C., by Protheroe & Morris.

FRIDAY—
The Freehold Fruit Farm and Market Garden, with two Farmhouses, Cottage, Buildings, Greenhouses, &c., 87 acres; Fruit in all about 135 acres, by Protheroe & Morris, at the Mart, Tokenhouse Yard, E.C., at 2.

A plant, or for the matter of that **Adaptation**, any living creature, is the result, as regards its form, appearance, and endowments, of two tendencies, the one which it inherits from its ancestors, the other consequent upon its power of adapting itself to the varied circumstances of the present. The ancestral form may have originated, and probably did so, from like causes, but that was so very long ago that in practice we may disregard it. A botanist engaged in comparing and classifying the plants he meets with, more or less unconsciously places more reliance on what he supposes to be hereditary characters than he does on those which are obviously the result of adaptation to circumstances. The former are relatively permanent, the latter are fluctuating. The general conformation of a Primrose flower, for instance, was evolved so long ago, that despite minor variations of size and colour in the different species, no one accustomed to study plants has any difficulty in recognising the genus *Primula* from the flower. The case of the foliage is different. Primroses of one sort or another grow in all sorts of situations, in different climates, on different soils at varied elevations and aspects.

Leaf action and root action, and all that is implied in those words, must be correspondingly varied and the forms of the plant and leaf diversified accordingly. We may note this by comparing the vegetation on a wind-swept down, in a sheltered wood, on a dry road-side, on a sandy dune, and in a moist meadow by the river. Sea-side plants afford marked instances of adaptation of form and structure to circumstances. Succulence of foliage is a very common attribute in such plants, as witness the wild Beet, the Cabbage, the Sea Kale, the horned Poppy (*Glaucium*), the so-called Tea tree, *Lycium chinense*, all of which, when growing near the sea, have fleshy leaves with thick rinds to prevent undue evaporation, and an increased amount of storage room for water provided for by the inordinate development of the cellular tissue. What precise part the salt plays, independently of other conditions, is doubtful, but evidently its influence is great. The illustrations (figs. 139 & 140) afford good examples of the effect of circumstances on plants. The leaf represented

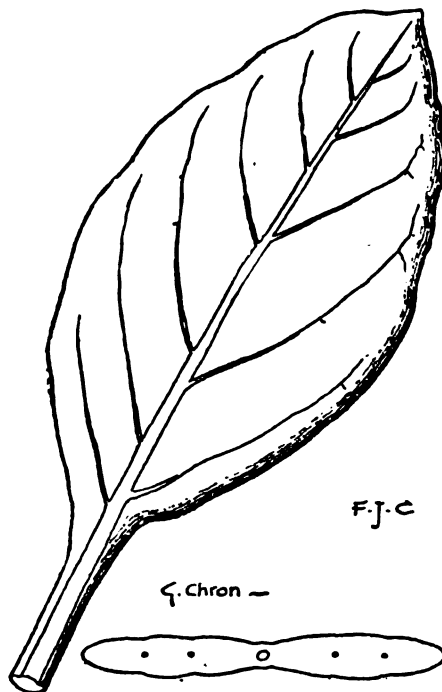


FIG. 139.—A SUCCULENT LEAF OF THE COMMON PRIMROSE, WITH SECTION.

is that of a Primrose, growing not by a "river's brim," but on the shore close by the Corbière lighthouse in Jersey. The Rev. H. E. Fox, who gathered them and sent specimens to Mr. F. J. Hanbury, describes them as growing in little crannies of soil among the rocks where the men had doubtless planted them. There were several dozen plants all showing the same hypertrophied condition of the leaves. Some of the leaves were sent to us by Mr. Hanbury, and Mr. Chittenden was obliging enough to examine them microscopically for us, and to him we are indebted for the drawings which accompany this note. A section of an ordinary leaf is shown drawn to the same scale for the purposes of comparison. It will be noted that the wrinkled appearance of an ordinary Primrose leaf is replaced by a smooth surface, that the hairs which are so characteristic of a Primrose leaf are deficient, and that the cells of the substance of the leaf, whether of the closely set palisade variety, or the more loosely disposed spongy tissue, are not only increased

in size but in numbers also. Both surfaces have stomata present, instead of the lower surface only.

Many of our culinary vegetables have been derived from seaside plants, and it becomes a question whether the Primrose might not be so modified as to furnish a new vegetable for the table! Primroses are so beautiful and so fraught with delightful associations that we feel we owe them an apology for making such a suggestion, but they would at least serve a more useful purpose if they were employed in this way than when utilised as a badge by party politicians!

OUR SUPPLEMENTARY ILLUSTRATION.—For the illustration of *Plagianthus Lyalli*, an attractive malvaceous shrub, we are indebted to Earl ANNESLEY, in whose grounds at Castlewellan, Ireland, it proves hardy, as indeed it does at Kew. When grown against a wall the young shoots are apt to get injured by sun-scorch. The shrub is a native of the Middle Island of New Zealand, and is well figured in KIRK'S *Forest Flora of New Zealand* (1889), p. 279, tab. cxxxiv. The author describes it as one of "the most graceful and beautiful flowering trees in the New Zealand flora; its large, white flowers, nearly an inch in diameter, are produced in vast profusion and harmonise beautifully with the foliage, which is at once soft in character and bold in outline." It is one of the few deciduous trees of the island, its foliage assuming vivid colouring in the autumn. At low levels the tree retains its leaves in winter. The inner bark is tough and net-like, whence the popular name of Lace Bark. It is illustrated in Earl ANNESLEY'S work, *Beautiful and Rare Trees and Plants*, which contains seventy reproductions from photographs taken at Castlewellan by Lord ANNESLEY himself. Mr. E. G. BAKER, in his synopsis of the Malvæ in the *Journal of Botany* (1892), p. 137, refers this to *Gaya* under the name of *Gaya Lyalli*, the distinction of the two genera being founded on the stigmas, which are linear in *Plagianthus*, but truncate or capitate in *Gaya*.

EVENTS OF THE FORTHCOMING WEEK.—Gardeners are about to enter on what usually proves to be one of the busiest weeks in the whole course of the horticultural year.

On Monday evening the members of the Kew GUILD will assemble at the Holborn Restaurant for their annual meeting, and this will be immediately followed by the annual dinner. The president at the dinner will be Mr. GEORGE MASSEE, whose work in connection with the fungus diseases of plants is thoroughly well known to the horticultural public, as well as to Kew men in particular.

On Tuesday morning the "Temple" Show of the ROYAL HORTICULTURAL SOCIETY will be opened in the gardens of the Inner Temple on the Thames Embankment, and conspicuous as previous successes have been, the approaching exhibition is expected to be better and more interesting than ever. The judges of the various groups will commence their work of adjudication at 10.30 a.m., and at 11 o'clock the members of the Floral and Orchid Committees will assemble for the consideration of novelties, of which visitors to the "Temple" Show have usually the opportunity of seeing a considerable number. At 12 o'clock noon a Council meeting will be held, and at 12.30 the exhibition will be open for the inspection of Fellows. It will be noted that the Fruit and Vegetable Committee will not meet on this occasion. The "Veitchian Cup," which has already been awarded at three Temple Shows, is this year reserved for amateurs. Until the present time,



From a photograph by Earl Annesley.

PLAGIANTHUS LYALLI, HARDY SHRUB
FLOWERING AT CASTLEWELLAN.

it has been given in each instance to trade growers. We may point out in connection with the "Temple" Show, that since the last one was held in the Temple Gardens, the L.C.C. electric cars have been established on the Embankment, and visitors will find these cars a convenient means of conveyance either from Blackfriars Bridge on the one hand, or Westminster and Waterloo Bridges on the other hand.

The Temple Show will remain open until Thursday evening. The prices of admission for the general public are: Tuesday, 7s. 6d; Wednesday, 2s. 6d.; and Thursday, 1s. Gardeners can obtain 2s. 6d. tickets for 1s., but these privilege tickets will not be issued later than May 25.

On Wednesday, at 7 p.m., the BRITISH GARDENERS' ASSOCIATION will hold its third annual meeting at the Essex Hall, Essex Street, Strand (close to Temple Gardens). Mr. W. H. DIVERS, head gardener to His Grace the Duke of Rutland, at Belvoir Castle, will preside. After the business meeting is over, a Conference will be held, at which the following papers will be read and discussed, viz:—"Testimonials," by Mr. A. C. BARTLETT, of Pencarrow; "Apprentices," by Mr. W. DALLIMORE, of Kew; and "Examinations for Gardeners," by Mr. C. FOSTER, of Reading University. We believe that satisfactory progress will be reported at this meeting. The association has more than 1,050 members, it has accumulated a capital of nearly £300, and is now publishing a journal.

In addition, "Temple" Show week will be taken advantage of by numerous traders and private collectors for the sale of duplicate and surplus stocks of Orchids. These sales are referred to in our advertising columns.

SOUTH-EASTERN AGRICULTURAL COLLEGE.

—We are informed that a donation of £50 has been made to the College by the Goldsmiths' Company. In the recent examination of the Surveyors' Institution the following students qualified for the Professional Associateship:—Hon. J. M. CAMPBELL, R. N. DOWLING, W. H. A. FITZROY and A. V. SPENCER. The National Diploma in Agriculture has been obtained by A. D. MCKINSTRY, and the first part of this examination has been passed by R. H. CARTER, L. R. EIZAQUIRRE and W. N. HARVEY.

AGRICULTURAL EDUCATION.—The Departmental Committee, of which Lord REAY is chairman, held meetings on the 14th and 15th inst. Representatives of the Ridgmont Agricultural Institute, Bedford, and the University College, Reading, attended and gave evidence.

GRAFT HYBRIDS.—These singular results of grafting have received additions in *Crataegus-Mespilus* Dardari, and C.-M. Asnieresi, which originated on the nurseries of Simon Louis Brothers, in Plantieres. One form—C.-M. Dardari—partakes more of the characteristic features of the *Mespilus Germanica*, and C.-M. Asnieresi, those of the *Crataegus monogyna*. An illustration in *Die Gartenwelt* shows a plant having growing upon it the two forms of *Crataegus Mespilus* and the typical form of C. monogyna. A case in which are combined the forms of the two parents and of the two bastards at the same time, has, Mr. C. K. SCHNEIDER observes in a note accompanying the figures, never before been remarked, but is one that is very probable.

ODONTOGLOSSUMS AT PITTSBURG.—As we learn from the journal *Horticulture*, published at Boston, Mass., *Columbian Orchids*, of which *Odontoglossums* form the finest section, are likely, should the summer prove a hot one, to have a difficult time. In Dr. SHAFER's collection in that city, in consequence of the many dull, dark, and foggy days during the late winter, there is a general absence of the bronzy tint, the leaves being quite green. The per-

centage of flowers, however, has been good, many plants flowering for the first time, and some of them being plants of the real Pacho type. The collection contains some plants imported in 1895. This puts aside the theory that it is impossible to keep a collection without decrease for a considerable number of years. The doctor keeps an accurate record of every plant which comes into his possession, and it is interesting to note that there have been scarcely any deaths amongst the *Odontoglossums*, although many of them were in bad condition when received. The plants are wintered in a span-roofed house, running north and south. From March till September they are placed in a house especially constructed for cool Orchids. This house has a lean-to roof built against the eastern wall of the *Cypripedium* house, and is shaded on

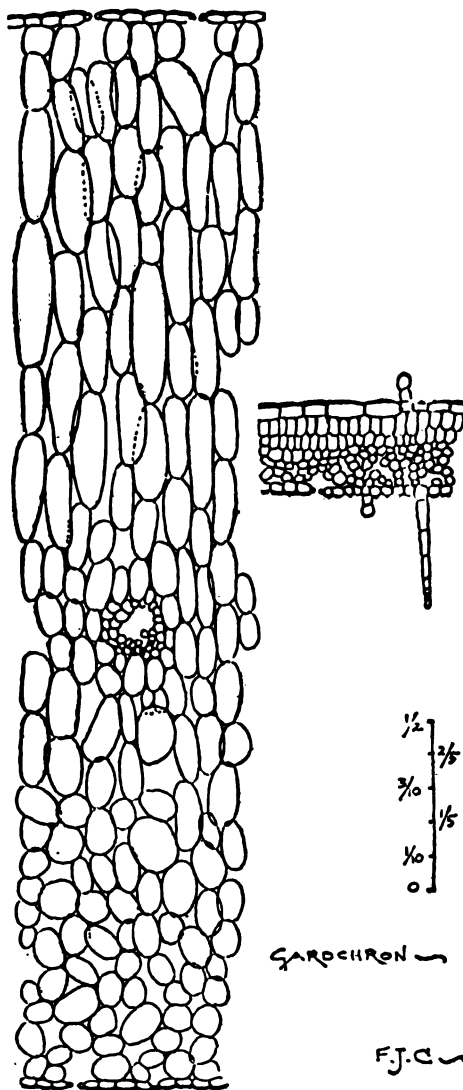


FIG. 140.—TRANSVERSE SECTION OF A SUCCULENT PRIMROSE LEAF, WITH SIMILAR SECTION OF NORMAL LEAF FOR COMPARISON. THE SCALE REPRESENTS 1 M.M.

(For text see page 332.)

the south by the projecting dome and front of the centre house. Owing to the construction of the range, which is built on the side of a hill, the floor of the cool house is 9 feet below the level of the other compartments. In summer the house gets only the morning sun, being, during the hottest part of the day, quite in the shade of the other houses. Bamboo shading is used to protect the plants from direct sunlight, but this is only needed in the early part of the day. The fact that the range is built on a hillside is a distinct advantage in ventilating, as the lowest ventilators are considerably above the ground level in front.

ROSES PROOF AGAINST MILDEW IN AUSTRALIA.—The Rose suffers from mildew in parts of Australia just as is the case at home. But a good many fine varieties are proof against the fungus, of which a correspondent at Moonee Ponds, Victoria, sent a list to *The Journal of Horticulture of Australia*, which was published in the issue for April 1 last. These are Anna Olivier, Papa Gontier, Maman Cochet, Princess Alice de Monaco, Corallina, Mad. Dupuy Jamain, Marques de Aledo, Mad. E. Metz, Mad. Auguste Chontet, General Schablikine, Mad. Vermorel, Boadicea, Mrs. B. R. Cant, A. Marie Souper, and Françoise Crouse.

POPULAR NAMES RESULT IN CONFUSION.

In *The Florists' Exchange* is a note on the uncertainty of the names of coniferous plants in the U.S.A. In the southern states the so-called Yellow Pine is *Pinus palustris*; further north it is *P. mitis* (*P. echinata*), and in the northernmost states the term is given to *P. rigida*. Christmas trees consist of *Pinus palustris*, plants 2 to 3 feet high being set in pots. The chief beauty of this plant consists in its magnificent, long needles. *Pinus rigida* is called Pitch Pine, which really and properly belongs to *P. australis*, which supplies the greater proportion of the wood employed in constructing glasshouses. In the older dendrological works we find the names Pitch Pine and Yellow Pine applied to *P. ponderosa*, a proof of the unreliability of folk names.

ROSE PENELOPE.—This is described as a beautiful new Tea Rose, which originated from seed with JOHN WILLIAMS, Broadwater Nurseries, Mount Gravett, Brisbane, Queensland. It is a free bloomer; each bloom is carried singly on long stalks, supported by prominent guard leaves. The flowers are unusually firm and of good substance. The lower half of the flower deep reddish crimson, the centre creamy white, and underneath the centre petals it is flushed with crimson. It is a distinct break in colour from any known variety, and is the first Australian rose to obtain a certificate of special merit from the Royal Horticultural Society of Victoria. It has passed into the hands of a New York nurseryman for distribution outside of Australia.

HYBRIDISATION AND CROSSING IN ORCHIDS.

—In a series of articles that has been running for several weeks recently in Müller's *Deutsche Gärtner-Zeitung* a number of interesting observations on the hybridisation and crossing of tropical Orchids have appeared from the pen of the Hon. F. LEDIEN, Director of the Dresden Botanical Garden. He states it is a matter of constant occurrence, and one that is of a remarkable nature, and not by any means accounted for, that certain genera and species are capable of greatly affecting, altering, or completely suppressing in their progeny the features of the species and genus with which they are crossed. A well-known example of this fact is found in *Zygopetalum Mackaii*, a species which has been frequently crossed with other species, but with the same result, the progeny being always *Z. Mackaii*, in spite of the impossibility of self-fertilisation having taken place. And similarly with the reed-like, pseudo-bulbous *Epidendrum radicans*, and likewise *E. nocturnum*, which, with the most careful crossing with other species, only result in the production of the identical species of *Epidendrum*. With *Lælia harpophylla* crossed with *Cypripedium villosum* or the reverse cross, the progeny are either *Lælia* or *Cypripedium*, according to whichever is the seed-bearing parent. Contrarywise, the prepotency of certain species by crossing is a fact that is of common knowledge, and to the raiser it is a factor of much importance. The general belief that crosses result in something midway

between the two parents holds good for species, but not for varieties when crossed. In these it is in general a fact that the darker coloured variety, say, in *Odontoglossum crispum*, is transmitted in the progeny. This is peculiarly the case when albinos (white-flowered forms) are crossed with coloured varieties in the hope of obtaining albinos, the albino never appearing in the seedlings. The raising of albinos is only successful when pollen from albinos is employed, as, for example, *Dendrobium nobile virginalae*, *Cypripedium Sanderae*, and *C. x Maudiae*, but not always. In general the crossing of dark varieties upon light coloured ones should be avoided, improvements being probable only when the dark variety is fertilised with pollen from a light coloured species or variety. The crossing of distinct species both ways, always the most profitable, results in slight changes from the parents, the hybrids taken in their entirety approach the middle between the two parent forms. Exceptions to this rule are known in certain species, viz., in crosses with *Brassavola Digbyana*, with the orange-coloured *Lælia xanthinae*, and *L. harpophylla*, *Cypripedium Spicerianum*, &c. The pollen influence of *Brassavola* is so great that it is potent in crosses that are otherwise unsuccessful, as, for instance, in *Cattleya citrina* crossed with *B. Digbyana*. The finest and most valuable results come from crossing species with cross breeds. The whole of the progeny of these crosses or hybrids show certainly clear traces of their origin, but likewise extraordinary differences in the gradations of development of their characteristics in form and colour. In these crosses become noticeable the peculiarities of progenitors of the bastards, which were latent in the latter, and the result is a wonderful abundance and variety of forms and colouring—a maze of variations.

RANAWARA TEA.—This preparation, sometimes called *Matarata tea*, is made from the leaves or flowers (or a mixture of both) of *Cassia auriculata*, a common weed in dry places, known to the Cingalese as *Ranawara*. From a commercial point of view the plant is valuable as a source of tannin bark, but the medicinal use of the leaves dates back to a very remote period, and a decoction of them is prescribed as a blood purifier and laxative, and in the treatment of diabetes and skin diseases. Commercial samples are sometimes adulterated with caffeine.

LAW NOTES.

LILY OF THE VALLEY CROWNS.

AN action to recover the cost of a consignment of Lily of the Valley was recently heard at the Hull County Court. It was alleged by the defendant that the Dutch variety had been sent instead of the Berlin variety. The plaintiffs sued for £25 for the Lilies, and the defendant counter-claimed £20 loss and paid into court £8 8s. for *Gladiolus Blushing Bride*, which was ordered at the same time. Defendant stated that he ordered 20,000 crowns of the Berlin variety in 1905, and planted them about the middle of February. As soon as they were grown he found they were not Berlin but Dutch produce. Witnesses supported his contention that the flowers were of the Dutch variety. In the end his Honour gave a verdict for the defendant, and considered the £8 8s. paid into court a sufficient sum to pay for the *Gladiolus*. He also gave judgment for the defendant on the counter-claim for the nominal sum of 1s., plaintiffs to pay the costs. There was another similar case. The action, however, was withdrawn on payment of costs by the Dutch firm.

NURSERY NOTES.

ROYAL EXOTIC NURSERY, CHELSEA.

AT Messrs. Jas. Veitch and Sons' emporium of plants of all kinds, I found, at even this late part of the spring, a span-roofed house full of *Hippeastrums* in the best of condition as regards blossoms; and there were a few still unsold among them of pronounced large size, some with pleasing variations in the markings or colours of the blooms, not previously noted. Taken, however, as a whole, the raiser appears to be approaching the extent of possible variations with the present race. There are several species of *Amaryllids* as *Pancratiums*, *Cyrtanthus*, *Eucharis*, *Doryanthes*, *Crinum*, *Nerine*, &c., which, if used as one or other parent, might afford remarkable results. It may be of interest to give a few names of the finer varieties of which flowers were in a good condition on May 3rd: *Icarus*, a large, regular-shaped flower, having a white ground without any green in the tube, and with scarlet mottling; *Tendresse*, flower scarlet, and having a white stripe on each segment and a white base to the tube. There is a purplish tinge on the scarlet parts of the flower. *Epicasta* is a fine, large scarlet self, and *Galicia* is of equally perfect form, and the same tint. *Diane* is a new break as regards colouring; *Vedas* is a large white-ground flower, flamed crimson, and with white edges to the segments; *Norma* is a scarlet-coloured variety of fine form; *Acme*, of a purplish-crimson tint, has white stripes on the segments, and is in tint rather novel and pleasing. *Ovidius* and *Pyrrha* are fine selfs of different shades of crimson. The collection, with cool weather and not much sunshine, will remain for several weeks longer in flower in good condition.

The span-roofed show house contained a quantity of pretty flowering plants. There were remarked young *Ericas*, full of flower, of the varieties and species *ventricosa*, *Coccinea minor*, *hybrida*, with drooping tubular blooms, translucent, *Cavendishii*, the finest of the yellow-flowered species; *candidissima*, *perspicua erecta*, having delicate-looking pink and white flowers; *Wilmoreana*, *persoluta alba*, *fastigiata rubro-albo tincta*, &c. Of *Azalea indica* there were seen many well-known favourite varieties, and others less known as *A. carminata splendens*, *Julius Roehrs*, a crimson semi-double; *Van der Cruysen*, similar to the last-named as regards form but "old rose" in colour; *Bernard Andreas*, a semi-double white flower; and another of the same name, of a bright rose-pink tint. Several bushes of the very distinct miniature *Rhododendron racemosum* of a very dense habit of growth and very free in flowering were observed. The house is also gay with a number of plants of *Canna indica*, in self-coloured and spotted varieties; *Cytisus elegans* and *C. racemosus*, the former the more distinct in form of spike and tinge of colour, and also in lateness of flowering; *Kalanchoe Ena* and *K. Felthamensis*, the latter with larger corymbs and brighter scarlet colour. Many plants of *Boronia elatior*, full of flower, were also noted: *Streptosolen Jamesoni*, well-flowered examples of *Hydrangea Hortensia*, *Rambler Roses*, including the *Farquhar*, *Dorothy Perkins*, and others were in abundant bloom; also some well-bloomed plants of *Pyrus Scheideckeri* and *Saxifraga pyramidalis*, whose spikes of white flowers were finely developed on quite small plants in 5-inch pots. In some other houses there were observed capital examples of the finest coloured *Caladiums*, Veitch's special strain of *Schizanthus grandiflorus*, in much variety of colouring, full of bloom, and only 1½ feet in height, bushy and compact in habit, so different to *S. retusus*. A fine lot of the new Chinese *Primula Cockburniana* was seen in the house; and some plants also of *Lobelia tenuior*, so much like the old *L. gracilis*, but much less "weedy" in character. F. M.

TULIPS AT COLCHESTER.

COLCHESTER must be regarded as a town of considerable horticultural importance, for, in addition to its celebrated Rosaries, it also contains the important hardy plant nursery of Messrs. R. Wallace & Co. These nursery gardens are situated on both sides of the railway and but a short distance from Colchester station on the Great Eastern Railway. An excellent service of trains from Liverpool Street perform the journey without stopping in about one hour. The gardens extend from the north side of the railway to the banks of the river Colne, in a meadow near which has been formed a water garden, and this is planted with rare aquatic and bog-loving plants, the collection being especially rich in *Nymphæas*. The name, *Kilnfield Gardens*, is suggestive of brick-making, an industry which is still carried on in a corner of the grounds, and through which we wandered before finding the path leading to the nursery proper. The gardens, however, are not wholly situated upon the clay, for the soil varies in parts, and plants of different requirements in the matter of soil can be cultivated successfully; but, generally, it overlays a fine, mild brick-earth, with a subsoil. Lilies are accommodated in an old orchard, and it is found that the protection of the trees is very helpful to these bulbous plants. In all, the gardens embrace an area of about ten acres; they were established by the late Dr. Wallace many years ago, especially for the cultivation of Liliiums, and he gathered together all the known species. Since then many rare bulbous and other plants have been introduced to commerce from this nursery, including *Hemerocallis aurantiaca major*, *Lilium Henryi*, *L. rubellum*, &c. The specialties of the firm are Liliiums, Irises, *Calochorti*, and Californian bulbs in general, but about seven years ago the culture of May-flowering Tulips was taken in hand.

The collection of Tulips occupies an area of about two acres, and comprises in all about 50,000 bulbs. The varieties are not exceeding numerous, for only the very choicest kinds are grown, and any which are not up to the best standard are eliminated. Thus a batch of one very pretty flower was marked for destruction on account of its brittle stalk, the wind and rain being sufficient to break it; and another, not quite up to the best form in other respects, was similarly threatened. The first variety of which we have note is *Claude Gillot*, and this we may liken to a beautiful scarlet Oriental Poppy in colour. The flower is of large size and of admirable form. *King Harold* is not only one of the finest of the newer Tulips, but of all the race. It is a very vigorous grower, and the bloom is exceedingly large, the colour being a rich shade of crimson. *La Candeur* is white, or of a cream shade, but has a very faint suffusion of rose on the exterior of the petals. The petals of *La Tulipe Noire*, when seen in the sunlight, glow with a beautiful satiny sheen. *Flame* is a shapely flower, with much substance. The colour is a rich scarlet. *Gesneriana lutea* is of a most beautiful shade of yellow, and has the long pointed segments of the *Gesneriana* race. It is very difficult to know which to admire most, this variety or the exquisite *Golden Spire* (syn. *elegans lutea maxima*), with flowers shaded a rich buttery-yellow. A very refined variety is *Erguste*, of the Darwin type, with flowers coloured heliotrope. Europe is one of the earliest of the Darwins, and its scarlet flowers are very effective when massed in beds; it is an excellent bedding Tulip.

Fanny is of the type known as "fancy." The colour is pink, feathered with white. One of the grandest flowers of all is *Farncombe Sanders*, a bold, upstanding Tulip—a solid shade of red, with white at the base of the

petals. This is a splendid grower, and admirable for bedding purposes. Another bold flower is Antony Roozen, a shade of deep rose and a degree darker than Fanny. It is best when grown in half shade. Henner is rich red, almost maroon in colour, and has very vigorous growing foliage. Walter T. Ware, of the May-flowering type, is a pleasing shade of apricot-yellow, almost an orange. Inglescombe Yellow belongs to a set of which the others are Inglescombe Scarlet and Inglescombe Pink, three of the very best border Tulips in their respective colours. Isis is a notable variety in the scarlet-coloured section; internally the base is blue.

paler margin. The flowers are developed on tall peduncles. Landelle is a little deeper shade of red than Mme. Krelage, and has a pretty suffusion of pink at the base of the petals. It is a good grower. Doris is a dwarf, May-flowering Tulip of very prolific flowering, half a dozen flowers being common from one bulb. The colour is pink or lilac rose, margined with white and flushed with grey. Eurasian is of the same type, and has similar colouring to the last named; the flower is flushed with silvery-lilac, and is long and pointed. Glaucois has, like its namesake, a beautiful blue "eye," which is found at the base of the flower. The general

gus beds], Eremurus, Scillas, and many other bulbous subjects. In a wind-screened portion of the nursery, where the Myrobalan Plum forms thick hedges furnished with dense growths to the ground line, are accommodated many rare and choice rock-garden plants, and frames and "Alpine" houses are filled with interesting hardy plants. We noticed a very large stock of Saxifraga Burseriana major, and another of Habranthus pratensis (syn. fulgens). This last-named plant has rich scarlet flowers produced in pairs, the base of the petals having a yellow marking. It is a good subject for planting at the foot of a warm wall.



FIG. 141.—*PLAGIANTHUS LYALLII*, HARDY SHRUB, FLOWERS WHITE.
(See p. 332 and Supplementary Illustration.)

Good form is not its least pleasing attribute. Clara Butt is a great favourite with Tulip lovers, and it is in great demand as a market variety, being free in flowering, robust in habit, and a pretty shade of salmon-pink. Negro is dark, as its name suggests: it is a little coarser than La Tulipe Noire. Mrs. Cleveland is of the "fancy" type, white suffused with pink. Phyllis is somewhat similar to the last named, but is flushed with lilac instead of pink, and it is rather smaller in the bloom. Millet is a bold, handsome flower of a shade of maroon. It has thick, leathery segments that resist the weather well. It is a very popular variety, and being in demand is proportionately dear to purchase. The flowers are amongst the first to develop, and the last to finish. Maiden's Blush is pink, but a better flower of the same colour is Mme. Krelage. The soft pink of the petals fades to a

colouring is rose. John Ruskin is really a refined Eurasian; the mingling of gold and other colours is very pleasing. Orange King is a good, stout flower that is "alive" with colouring. It is one of the newer varieties. Royal White is interesting from the abnormal size of its stigma, which detracts from what is otherwise a beautiful flower. Hammer Hales is the latest of Messrs. Wallace's raising. It is a very large flower of orange shading, with especially beautiful coloured margins.

The above named represent the "pick" of the varieties of Tulips grown at Kilnfield Gardens. All were in remarkable vigour, and many of the choicer sorts were seen in large batches.

We have referred to the water garden; there are also whole fields planted with Lilies and large breadths of Irises [those of the Onco Reglia type being grown on ridges like Aspara-

THE CULTIVATION OF RHODODENDRONS.

In the beauty of their flowers and their extreme floriferousness there is no genus of flowering shrubs to be compared to the Rhododendron. In places which are suited to their requirements the plants flourish with freedom, and gardens not naturally suited to them in the matter of soil can be made so. During the present season their floriferousness is very marked. This, no doubt, may be accounted for by the abnormal rainfall during their growing period last year, combined with an unusual amount of sunshine last autumn, when their wood became thoroughly ripened. It is just a century since the introduction of some of the older garden species, including *R. catawbiense*, *R. arboreum*, and *R. caucasicum*, and these have become cultivated to such an extent that, with *R. ponticum*, they are to be

found in almost every garden. It was within a year or two of 1850 that the more important Sikkim Rhododendrons were introduced by Sir Joseph Hooker, and from these have been raised a large number of hybrids with flowers of almost every shade of colour. Some of the species are mere trailing plants, but some, such as *R. ponticum* and *R. arboreum*, attain to a height of from 25 feet to 30 feet. There is also a great divergence in the foliage of the species: *R. glaucum* has leaves 1 inch to 1½ inches in length, whilst those of *R. Falconeri* are from 15 inches to 18 inches in length. The corymbs are equally as varied in size as the leaves; those of *R. Griffithianum* measure 12 inches across, with individual flowers 4 inches in width, while the whole flower truss of *R. glaucum* scarcely reaches 3 inches in its widest part.

In Cornwall a great number of species, which in other parts of the country are only half hardy, are grown in the open, and sheltered only from exceptional frosts and from strong winds, which is especially needful when cutting winds prevail during the time the plants are making their growths. There are several of these more tender species which commence to grow in February and March, and these have to be carefully watched, even in the south-west. Speaking generally, however, most of the species flourish there in the open. Violent gales are exceedingly harmful to all the Sikkim varieties of Rhododendrons, and in the case of *R. Falconeri*, with fleshy, heavy leaves, this is readily explained. These leaves, in pairs, are often 2 feet 6 inches in length, and at their greatest breadth they will measure 5 inches, thus exposing a great surface to the wind, and it is no unusual experience to find leaves of this kind wrenched off by gales. Further, if the plants are greatly exposed, the edges of the leaves turn brown, and present an appearance not unlike those often seen in injured leaves of *Bambusa palmata*, or they will lose many of their lower leaves prematurely and become "leggy." Rhododendrons dislike any appreciable quantity of lime in the soil, but they revel in fibrous peat from the granite hills. In gardens where a formation of peat upon slightly-decayed granite, or where the rock is crumbling into rubble and gravel exists, then the peat is likely to contain some of these disintegrated particles, and this mixture of gravel, Fern roots, and decomposed vegetable matter makes an admirable rooting medium for these plants. Half-decayed leaves are a good alternative to peat, but their nourishment is the sooner exhausted. Although Rhododendrons succeed best in a soil containing much humus, a soil consisting of a mass of leaves, small branches, and bits of bark mixed together, and, necessarily, in different stages of decomposition, is not an ideal rooting medium for them, and when leaves are used the only addition should be that which will assist aeration. The roots of Rhododendrons are very small and numerous, consequently, they are capable of making ready use of food at their command. Rhododendrons like a firm rooting medium, and here, again, leaves fall below peat in value, for it is almost an impossibility to press the former to anything like the solidity of the latter.

The position of a Rhododendron garden is not always a matter of choice, but a matter of necessity. Still, much may be done towards providing shelter and water, and, at the same time, towards having the plants in such a position as to be easily accessible. In the planning of a Rhododendron garden it is well to remember that isolated specimens in the open will require much more consideration in the matter of situation than plants which are placed in naturally sheltered positions. In the former case provision must be made against winds from all quarters, and in this respect advantage should be taken of any existing wind-breaks. No better site can be imagined for a Rhododendron garden than a narrow, well-wooded valley, especially when the slope is from east to west. The north side of

such a valley provides a position in which Rhododendrons are quite at home. Where no such sheltered conditions exist, resort must be made to the old-time system of sheltering the more tender species by planting the commoner varieties around them. In this respect Rhododendron *ponticum* makes a suitable screen, and in thick plantations of this species a hollow formed by removing some of the plants forms an admirable nook for the reception of more valuable species. A thick awning must be provided to protect plants which make their new growths early in the spring from frost. It should be held firmly in position, and never be allowed to beat against the young growths. A covering of dry leaves forms a good protection for the roots in winter, and a layer of half-rotten leaves prevents undue evaporation from the soil in summer.

Rhododendrons require careful planting, for if their roots are not inserted at a sufficient depth they suffer from drought, and if they are planted too deeply they suffer from lack of air at their roots. The "collar" of the plant may safely be put 2 inches above the surrounding soil, and if it is necessary to form a "cup" around the plant, it is wise even then for the plant to be slightly raised. Rhododendrons are not deep-rooting subjects, and if the subsoil is very open and porous they are liable to suffer from drought, and, on the contrary, if the subsoil is wet, there is a danger—in the absence of proper drainage—of their becoming waterlogged. The plants should never be allowed to suffer from lack of water at their roots, for if the "ball" becomes dry it is not an easy matter to thoroughly wet it again, unless water is constantly applied, and heavy applications of water should be avoided.

Seedlings are much to be preferred to grafted plants or layers, and although they require a little more time to attain a given size than plants raised from layers or grafts, they soon develop into well-balanced specimens, and there is no danger of the stock breaking into growth, as in grafted plants. Layers usually fail to make symmetrical specimens. To perpetuate a variety it becomes necessary to resort to propagation by layering or grafting. In raising plants from seeds the latter should be scattered evenly on soil that has been finely sifted and thoroughly wetted, and be just covered with sharp silver-sand. Plunge the seed pans in ashes in a cold frame, and shade them with some heavy material until the young plants appear. Gradually inure the seedlings to the influences of light and air, and as soon as they are large enough, transplant them an inch apart, in soil which contains a good sprinkling of granite grit. They should be kept in a close atmosphere and shaded for a day or two after transplanting, after which they should again be allowed freer conditions. Never allow the foliage of seedling Rhododendrons to become wet during a rapidly-falling temperature, or they will probably damp off. Sufficient drainage to the soil is imperative for the well-being of young Rhododendrons. They do not tolerate coddling, but they require good drainage, a firm yet sandy soil, and plenty of ventilation. When the plants are ready for planting in the open, choose a well-sheltered and easily-accessible quarter for them. Give them plenty of sound peat for a rooting medium, and see that they are planted firmly. It is doubtful if Rhododendrons are much benefited by the application of ammoniacal manures. If they are given any stimulant it should be in very small quantities: a sprinkling of stale soot and a top-dressing of half-rotten leaves seems to benefit them more than a heavy mulching of farmyard manure.

Nothing is gained in the matter of increasing their root growth by annually lifting the plants as is the case with many other shrubs. Any pruning should be performed in the month of May, and they will afterwards break readily into new growth and form thick bushes. The removal of any fruits that appear is distinctly favourable to the plants. *H. W., Trevine.*

PERENNIAL PLANTS FOR SUB-TROPICAL GARDENING.

THE resources for supplying an adequate number of tender plants, in variety, for furnishing a sub-tropical garden in a public park are generally considerably inadequate, but by including hardy perennials suitable for the purpose, the use of an excessive number of tender subjects is obviated and the effect produced is equally as good. The following is a selection of hardy perennials that are suitable for planting in a sub-tropical garden.

Acanthus mollis and *A. spinosissimus* are both useful. The flower spikes are displayed well above the foliage, which is both ornamental and bold in character. The species are adapted for planting in borders or in the grass, and should be given a deep soil and a sunny position.

Arundo donax and *A. conspicua* are very ornamental grasses, suitable for planting in moist situations. The culms grow to a height of 9 feet, and when surmounted by the silky-white plume of flowers they are extremely beautiful objects, especially when they are planted in masses. They luxuriate in a sandy loam.

The large-growing varieties of *Asparagus officinalis* are most graceful and elegant in appearance, and they are unrivalled for furnishing a light "foliage" effect. The roots should be planted in spring in a free, rich soil in a warm situation. The stronger growths only should be retained, and these should be staked so that the lateral growths may be extended. They are adapted for planting in the beds and borders, and attain to a height of 5 feet.

Bocconia cordata has a noble habit, and highly ornamental foliage of a greyish hue that renders it suitable for planting in the borders, or in any prominent position in the grass. It luxuriates in a rich, deep loam. The suckers must be removed as they develop, so that the crown growths may receive all the nourishment. Their height is 7 feet. *Buphthalmum speciosum* is an excellent plant for the borders; it has large, handsome leaves, and showy yellow flowers. It thrives in a rich, loamy soil; height, 3 feet.

Canna indica is one of the best plants for either the beds or borders. Although it is not generally considered a hardy plant, the roots may be left in the ground during winter provided some protection is afforded them, such as a layer of dry leaves 6 inches deep placed over the roots on the advent of frost. A light layer of soil should be thrown over the leaves to keep them in position. Protective material should be removed early in April, after which the surface soil should be lightly forked and dressed with well-decayed manure, which must be light and short. A rich, sandy loam suits Cannas, which, if given a warm situation and plenty of water will attain to a height of 6 feet. *Cynara Cardunculus* and *C. Scolymus* are ornamental foliage plants, and they prefer a rich, deep soil. Not more than three growths should be allowed to develop on each plant. The roots must be protected with a little litter or ashes during the winter months; height, 5 feet. *Echinops exaltatus* is an excellent subject for planting in the borders, and is serviceable both for foliage and flower effect. It grows well in ordinary soil, but being a gross feeder it responds quickly to liberal applications of manure water or mulchings around the roots, and attains to a height of 7 feet or more. *Eremurus robustus*, *E. Himalicus*, *E. Bungei*, and their varieties are unrivalled for producing a stately floral display. A deep, sandy loam suits their requirements. The young leaves should be protected in early spring by small branches of any suitable evergreen stuck in the ground around them. The habit and finely divided foliage of *Ferula communis* and *F. tingitana* render them useful subjects for planting in the borders. They are impatient of disturbance at their roots, and on this account it is necessary to plant young

seedlings in the permanent quarters. *Funkia Sieboldiana*, *F. ovata*, and *F. sub-cordata* are all well suited for planting in the front of borders and beds. The white flowers of the last-named species are very fine, but unfortunately they soon fade and drop; the foliage, however, is highly ornamental, being of a pale green tint. The variegated variety of *Funkia ovata* is also good. All the *Funkias* revel in a rich loam. *Gunnera manicata* and *G. scabra*, without which no sub-tropical garden is complete, are best planted in single crowns in prominent situations in the grass. They luxuriate in a rich, deep soil in moist situations that are partly shaded; they attain to a height of 9 feet. *Gynerium argenteum* and its varieties are all excellent plants, either for the borders or for planting in the grass. They like a free, rich soil, and should be watered frequently during the early stages of their growth. *Helianthus tuberosus* gives a good effect when planted in

grass. *P. sachalinense* is a first-rate subject to plant in moist situations for foliage effect only, and if mulched with well-decayed manure in early spring it will very quickly develop shoots, attaining a height of 12 feet. *Pulmonaria saccharata* and *P. officinalis* have both mottled foliage. *Rheum nobile* and *R. officinalis* are excellent foliage plants, and have leaves somewhat like those of a *Gunnera*. *Saxifraga purpurascens* may be utilised for the margin of beds and borders. It grows very freely and has a height of 9 inches. *Spiraea aruncus* and varieties, *S. lobata*, and *S. gigantea* are all suited for planting in moist and shady situations. Their leaves are all more or less pinnate, and the terminal spikes or panicles of flowers are very beautiful. *S. aruncus* grows 3 feet, and *S. lobata* and *S. gigantea* 6 to 8 feet in height. *Stachys lanata* and *Veratrum album* and *V. nigrum* are also suited for this style of gardening. *Puisne*.

Dendrobium speciosum Bancroftianum, imperfectly described by the late Professor Reichenbach in *The Gardeners' Chronicle*, 1881, p. 782, is more probably *D. fusiforme*, unless the type plant differs from those which have appeared in gardens.

Dendrobium Falcorostrum figured in Fitzgerald's *Australian Orchids*, 1879, vol. i., part v., t. 4, is also an allied species, intermediate in growth between *D. fusiforme* and *D. speciosum* Hillii. *Dendrobium speciosum* and its varieties and allies are very easy of culture if treated as warm greenhouse or conservatory plants, and exposed for a considerable time in the open air during the heat of the summer, or placed in a sunny position in an airy vinery or fruit-house. The ordinary Orchid-house is usually too moist for the Australian Orchids, except in their growing season, and if they are not given more airy quarters during the summer months they fail to flower, and usually decline in health. *J. O'B.*



[Photo by D. Legard.]

FIG. 142.—DENDROBIUM FUSIFORME: FLOWERS CREAM-WHITE WITH PURPLE LINES ON THE LIP.

groups in the borders, and will attain to a height of 10 feet when planted in rich soil.

Heracleum villosum is too coarse to introduce into the beds or borders, but it is a good subject for the shrubbery. *Lilium giganteum* is admirably adapted for planting in borders that are cool and shaded. It is advisable to plant sound bulbs of less than medium size, for although larger bulbs may flower the first year after planting, smaller bulbs that can establish themselves before they reach a flowering size give more satisfactory results. They succeed in a deep, free, rich soil. *Miscanthus japonica* and its varieties *striata* and *zebrina*, are ornamental grasses that do well in a rich, loamy soil. They should be given plenty of water when growing. Another grass, *Pennisetum latifolium*, should be planted in a snug corner in the borders in a rich, sandy soil. The roots must be protected during the winter by placing a thatch of dry straw 6 inches thick over them. *Panicum virgatum* is finer than the two preceding grasses and will grow in any good soil. *Polygonum cuspidatum* is an excellent subject, on account of its foliage and flowering, for planting in the

DENDROBIUM FUSIFORME.

THE accompanying illustration (fig. 142) of this interesting and rare species is from a photograph kindly sent by Sir Chas. W. Strickland, Bart., Hildenley, Malton, Yorks., who received the plant from Queensland with other species collected by his son, Mr. W. W. Strickland. The species was described by Mr. F. M. Bailey in the *Proceedings of the Linnean Society of New South Wales*, vol. ii., p. 227, wherein it is stated to be "common on the trees of the northern coastal scrub."

The flowers are cream-white, with small purple lines on the lip, and the form, as seen in this species, is common to many of the Australian *Dendrobiums*, although they differ much in their habit of growth, which probably accounts for the plant under notice being originally placed as a variety of *D. speciosum*, for it was considered to be a further extension of the species beyond the variety *Hillii*, which is a true *D. speciosum*.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

STRAWBERRY ROYAL SOVEREIGN.—I note with pleasure the manner in which *A. D.* extols this Strawberry (p. 321) for its excellent cropping and other qualities, but his statement that large fruits represent very grossly-grown and severely-thinned crops is an erroneous one. I have had under my observation during the present season a large batch of Strawberries of the above-mentioned variety, from which were picked fruits of the finest flavour, and a large proportion of them weighed fully two ounces each, from plants carrying in nearly every instance eight fruits. This, I think, can scarcely be considered severe thinning. With reference to his remark as to large fruits being grossly grown, I may say the fruits I mention were fed with an artificial manure, diluted in water at the rate of a teaspoonful to a gallon, and applied to the plants at every third watering. I think this cannot justly be termed gross feeding, especially when one takes into consideration the small space in which they are grown in pots. *D. W.*

I have no doubt whatever that this variety "has come to stay," till something better takes the fancy of gardeners and market-cultivators. Any gardener with experience of Strawberries, if he can free himself from the glamour of size and colour and firmness of pulp in Royal Sovereign, could name half-a-dozen varieties of undoubted excellence, which would prove pleasant eating, bear travel as well, and be more free from acidity, as free in cropping, as good and strong in growth, and as suitable for forcing as the variety in question. The fruits shown at the Royal Horticultural Society's meeting were the produce of grossly-fed plants grown in pots. But how many plants were looked over in order to obtain the number of monster berries the exhibitor put up we do not know, and the exhibitor did not proffer the information. I am still of the opinion that there are better "eating" Strawberries than Royal Sovereign. *F. M.*

SUMMER BEDDING IN PUBLIC PARKS.—Mr. Pettigrew's article on this subject (p. 315) is most interesting. The difficulty which responsible superintendents are likely to experience if attempts be made in public parks to introduce any original ideas or different styles of bedding, other than those the public are accustomed to, is unfortunately great, but in a few instances the public taste for a more natural style of bedding is evidenced. In some of the London parks, where other effects in bedding have been introduced, I frequently hear remarks passed commending the advance that has been made, and such remarks have emanated from all classes. This seems to show that the system of bedding, in which carpet and other formal designs predominate, should be largely curtailed, and should be superseded by a freer or mixed style. No gardener would advocate the abolition of Pelargoniums for bedding purposes, but, in my opinion, they seem to be used more frequently than is necessary. Want of variety leads to satiety, therefore departure from the present, largely-adopted, formal style of bedding is desirable. *Puisne*.

THE BRITISH GARDENERS' ASSOCIATION.—The progress being made by the above society is most satisfactory, and gardeners have well responded to the call. With a roll of over 1,000 members, a strong united council, and an indefatigable, experienced secretary, it should be possible to accomplish some really substantial work for the benefit of gardeners. The approaching annual meeting and the report for the past year will, therefore, be anticipated with the keenest interest. Judging only by the evidence yet before them, many earnest members are, however, becoming anxious to know how far the promises and inducements of the promoters are being realised. Questions are asked in various directions that will require very clear and comprehensive replies to give satisfaction. During a long journey in counties remote from the Metropolis, it has come to my knowledge that a feeling of uncertainty prevails, and if this be not promptly removed, the council will find themselves exposed to the danger of a seriously-diminished membership. The various subjects concerning which doubts are expressed may be condensed into the following questions: (1) What has been done in bringing employers needing gardeners into correspondence with members requiring situations? In other words, how far has the registry system answered, and how many members have secured appointments through the association? (2) Has the status of gardeners been improved in any direction, to what extent, and by what means? (3) Has the association organised any educational help for gardeners, or what is proposed to be done in this important matter? Much dissatisfaction is expressed with the so-called "certificate" that members receive; it is surely a misuse of terms to denominate such a production a "certificate." It might have been more fittingly termed an annual ticket or receipt. It appears from the reports that it is suggested an excursion of members to Continental gardens and nurseries should be organised. Such journeys are undoubtedly beneficial, but they can only come within the means of a few gardeners. Much more serious work awaits the association than arranging for outings that can only be of advantage to a comparatively small number of members. A proposal to publish a quarterly journal has also been reported, but why "quarterly"? It was said the association was to be an up-to-date body, yet the council falls back upon the antiquated system of issuing a quarterly publication, which is mainly confined to a few learned societies. What benefit such a journal will confer upon members it is difficult to understand in these times of stress? The association is so greatly needed and should be able to render such valuable assistance to its members, that some of its most earnest supporters (including the writer) have but one desire in any criticism or enquiries, namely, to see it placed upon the broadest possible basis, and performing the greatest amount of useful work in an efficient manner. *Lewis Castle.*

TO PRUNE OR NOT TO PRUNE.—I accept Mr. Udale's prices and quantities as far as they apply. I have been experimenting with an open mind, for a very long period, and in not one single instance does my experience tally with his, whereas it does agree with the systematic Woburn experiments thoroughly, as far as crops and quality go. I never troubled much about the weight of the trees, but heavy crops of good fruits produced in the shortest time have always been my test. My proposition, which Mr. Udale disregards, is that under equal cultural conditions the non-pruned trees greatly surpassed the pruned ones in weight of crop, whilst the quality is not inferior. Unless Mr. Udale's experiments were carried out and verified under these conditions they are worth nothing. We have Mr. Udale's admission (p. 240) that as regards weight of crop his own non-pruned trees beat the pruned ones by about a hundred per cent. The quality only is in dispute. My business takes me over the length and breadth of Great Britain, and I see all kinds of orchards, and venture to say that if any garden practice is doomed it is the stupid kind of pruning that has been in vogue for so long a period. Whole plantations of formally trained fruit trees of the pyramid type are being consigned to the rubbish heap and are being replaced by more naturally trained trees and bushes that are just slightly trimmed to preserve their shape and balance. An orchard of

pyramids filling half of a walled-in kitchen garden, and that had given next to nothing but trouble and disappointment to the owner and his gardener for years, was recently dug up and replaced with young trees. There were nearly 100 established pyramids, costing about 15s. each when planted, and they have been replaced by small standard trained plants at from 1s. 6d. to 2s. each, and are now fruiting freely the second year. A plan now commonly adopted with pyramid-trained trees is to convert them into standards by sawing off their bottom branches and allowing the top to develop. A gentleman in the New Forest sends me photographs to show how successful he has been in this treatment of his severely trained trees, and another in Galloway, N.B., writes me that he fears nothing now but late frosts, and never had such large crops. I suggest that owners are not likely to thus destroy trees they have purchased at great expense without some good reason. *J. Simpson.*

THE FRUIT COMMITTEE AND ITS DUTIES.—It is not customary for individuals, or bodies of individuals, to wish for more work. The members of the Fruit Committee are exceptions to such rule. At their last meeting, having so little to do, characteristic of many meetings in the spring, it was unanimously agreed to empower the chairman, Mr. J. Bunyard, to confer with the chairman of the Floral Committee, that body having a great excess of work, with the object of coming to an arrangement whereby all entries and groups of hardy shrubs and trees sent to the society's meetings be transferred to the Fruit Committee for consideration. Of course, the final consideration of the matter will rest with the council, even should the Floral Committee agree. It does seem absurd to have a gathering of some 80 experts at the Fruit Committee's table, and practically nothing for them to do. All the same, no one can question but that these experts are as capable of adjudicating on the merits of shrubs and trees as are the members of the Floral Committee. *Member.*

SALVIA SPLENDENS COMPACTA "ZURICH."—This novelty, raised by the firm of Otto Froebel, of Zurich, is the subject of an illustration in a German gardening journal. It is described as a capital autumnal plant for cultivation in beds and pots, and will, it is thought, be very commonly grown in the future. The plant possesses extraordinary floriferousness; the growth is compact and dwarf, and the flower spikes of considerable length. Planted out in the month of May it flowers early and continuously till November. The colour of the flowers is a glowing scarlet. Some have already seen the plant in cultivation at Wisley. *M.*

PSYLLA MALI (APPLE SUCKER).—Those who are suffering from this serious and rapidly extending pest will be anxious to learn what success has attended its treatment with the Woburn wash. Various assertions, for which the Woburn authorities are in no way responsible, have been made that this wash is a certain remedy for Psylla; but the past season is the first during which the action of the wash on the Psylla eggs has been examined, and it is only now, when the hatching is complete, that it is possible to tell what the result has been. From these experiments it appears that the wash of the strength advocated for mussel scale (6 per cent. of paraffin and 2 per cent. of caustic soda, copper sulphate being used as emulsifier; see *Gardeners' Chronicle*, February 16, 1907) will be ineffective; but results have been obtained which indicate the direction in which success may probably be obtained in future. In the first place, branches infested with the eggs were treated with the wash in a manner more thorough than could be adopted in ordinary practice, for they were momentarily dipped into the liquid; but of some 400 eggs on the branches every one eventually hatched out. It was noticeable, however, that the date of hatching was considerably delayed by the treatment, thus affording evidence that the wash was not altogether without effect. It was found that an increase of the paraffin to 12 per cent., or more, caused a complete mortality of the eggs: out of 1,100 eggs on the branches thus treated, only 11 hatched out. As the wash with 12, and even 18 per cent. of paraffin was found to cause no appreciable injury to the trees, these results sound very satisfactory; but they are discounted

by the difficulty of applying wash to growing trees in the same thorough manner as it can be applied to a few branches in experiment. The case is very different from that of the mussel scale, where the eggs are deposited chiefly on the trunk and main branches. The result was that Woburn wash of from 12 to 18 per cent. strength, though fatal when applied to severed branches, caused but little mortality when applied to large trees in the open, the action not getting much beyond the stage of delaying the hatching, similar to that of the weaker emulsion (6 per cent.) on the experimented branches above noted. In the absence of a more perfect method of application (which may, perhaps, be forthcoming), it is evident that a still stronger insecticide is required in practice. Some other experiments indicate how this may be obtained without unduly increasing the percentage of paraffin. In pursuance of a suggestion which we made as to the nature of the action of insecticides on eggs (6th Woburn report, p. 130), the effect of a 10 per cent. solution of salt was tried, both alone and in conjunction with 2 per cent. of caustic soda, and the results were very promising, the mortality caused on severed branches being 83 and 93 per cent., respectively. It is probable, therefore, that the addition of this amount of salt to the Woburn wash will greatly increase its efficacy, and thanks to the possibility of substituting copper or iron sulphate as an emulsifier in the place of soap, there is no difficulty in making this addition. We must wait, however, for another season before trying the combination. It may be mentioned that the joint use of caustic soda and paraffin has been found to result in the same remarkable increase of action (as compared with that of either of the substances separately) in the case of the Psylla, as it did in that of the mussel scale; also, that lime cannot be used as an efficient substitute for soda, even when taken in five-fold proportion. The efficacy of the wash increases rapidly with the percentage of soda present, but, unfortunately, 2 per cent. is the maximum amount which can be used with safety to the trees or to the workmen who apply it. We find also that the lime-soda-sulphur-salt washes are practically useless for the destruction of Psylla, but this, as well as the statement just made as to lime being an inefficient substitute for soda, does not necessarily militate against the good results which appear to have been obtained by Mr. Chapman with a lime-salt wash (details of which are now appearing elsewhere), for the proportion of lime (20 per cent.) used by this experimenter is far in excess of that used in any of the Woburn trials. Probably, as with mussel scale, it will be advisable to supplement any winter wash which may be used by a weaker wash applied at the time when any undestroyed eggs are hatching. Experiments are being made in this direction, and, so far, excellent results have been obtained with a tobacco wash of a certain strength. *Spencer Pickering.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

MAY 14.—*Present:* Mr. G. Massee, V.M.H. (in the chair); Drs. A. B. Rendle, M. C. Cooke; Messrs. H. J. Veitch, G. S. Saunders, F. J. Baker, A. Worsley, A. W. Sutton, J. T. Bennett-Poe, C. T. Drury, W. C. Worsdell, J. Douglas, E. A. Bowles, G. Gordon, W. Cuthbertson, and F. J. Chittenden (hon. sec.).

Contorted Carnation.—Mr. WORSDELL said he had further examined the curious Carnation plant shown by Dr. MASTERS at the last meeting, and remarked that DE VRIES had suggested that such contorted growths were the result of a reversion to a spiral arrangement of leaves, departing from the opposite decussate arrangement usual in the plant. Dissection of the bud appeared to support this view. In the specimen shown the leaves were also curiously rolled back.

Fungus on Retinospora.—Mr. MASSEE said that the fungus shown at the last meeting by Mr. SAUNDERS on Retinospora was Gymnosporangium clavariiforme.

Growth of Fern in Bottle.—Mr. DRURY showed the result of placing a small half-inch piece of the base of a frond of Scolopendrium vulgare

on a layer of well-washed silver sand, one inch deep, thoroughly moistened and located at the bottom of a pickle jar. The severed piece bore an incipient bud. The pickle jar was then tightly closed by means of a glass stopper, provided with a rubber ring. The exhibit represented the result of two years' growth without the admission of any air, the stopper having been wired on. The Fern had a number of fronds about 6 inches in height, and new ones were rising; there were also one or two seedlings, believed to be *Lastreas*. A mass of filamentous algae covered the sand and part of the bottle. The whole of this vegetative growth had been developed under the presumed air-tight conditions described. Members pointed out, however, the possibility of the diffusion of air even under the conditions described, and the fact that, as tap water had been used in washing and moistening the sand, a certain quantity of soluble earth salts had been originally admitted into the bottle.

Picea orientalis.—Mr. BOWLES showed, on behalf of Canon ELLACOMBE, inflorescences and cones of this beautiful Conifer.

Colouration of Apple flowers and fruit.—Mr. H. J. VEITCH showed a long series of flowers of Apples, some having white or only very slightly tinged flowers, while others had deeply-coloured flowers. He remarked that in each case the pale-flowered Apple trees bore very brightly-coloured fruits, while those with deeply-coloured flowers produced pale fruits. Mr. CUTBERTSON said he had observed a similar thing in Turnips, as in the Golden Tankard, a Turnip with yellow flesh, that produced white flowers. Mr. BOWLES said that the rule was not without exception, as in *Pyrus Niedzwetzkyana*, both the flowers and the fruits are very deeply coloured.

Richardias.—CHAS. WOODBRIDGE, Esq., sent an inflorescence of *Richardia Elliottiana*, having a leaf arising close below the yellow spathe and coloured like the spathe, except that the margin and tip were green. Mr. VEITCH showed R. × Mrs. Roosevelt having a leaf arising from the base of the plant, as is usual, coloured very pale green, except at the tip, which was similar in colour to the spathe.

Double Ribes.—A branch with very much doubled flowers of *Ribes atro-sanguinea*, from Sir E. LODER (gr. Mr. W. A. Cook), of Leonardslee, was referred to Mr. WORSDELL.

Potatos.—Mr. A. W. SUTTON showed a very extensive and exceedingly interesting series of plants of tuberous *Solanums*. Particularly interesting were those of "Papa Silvestre" (*Solanum Commersoni*), the wild Potato of Uruguay. The examples had been grown from tubers received direct from Montevideo. Five separate consignments of these tubers have reached Mr. SUTTON from his correspondent, who had himself collected the tubers in several different localities far away from any cultivated land. The separate lots of tubers were found growing under very different conditions as regards soil and locality, but in no case near cultivated land. In each instance, so far as the plants have as yet developed, there is every reason to think that each lot of tubers represents one and the same species. With the last consignment Mr. SUTTON received a certificate from Señor ARECHAULETA, Curator of the Botanical Gardens, Montevideo, certifying that the tubers then sent were the true *Solanum Commersoni* agreeing in all respects with the plant introduced by Commerson in 1767. Señor ARECHAULETA further stated that all the wild Potatos found in Uruguay were one and the same type, and that they all bore violet-coloured flowers. Mr. SUTTON produced Monsieur ROZE's book entitled *Histoire de la Pomme de Terre*, in which there is an illustration and description of Commerson's original plants fully confirming Señor ARECHAULETA's statement concerning the wild types of Potato in Uruguay. In connection with the exhibit Mr. SUTTON called attention to the fact that so far as his information went, all the plants hitherto grown in Europe under the name *Solanum Commersoni* were of the white-flowered type, and it was certainly the white-flowered type which Mons. LABERGIERE had experimented with. The white-flowered plant was apparently introduced to Europe (Marseilles) between 1895 and 1901, and has since been cultivated under the name *Solanum Commersoni*.

Mr. SUTTON also exhibited the following:—

1. "*Solanum tuberosum*, wild species," grown from tubers raised from seed received from Vermont Agricultural Experiment Station, 1906. This seed was collected in Mexico.

1a. "*Solanum tuberosum*, wild species," from seed saved from the foregoing at Reading in 1906.

1b. "*Solanum tuberosum*, wild species." Seedling plants raised from seed received from Vermont in 1907.

These three lots of seedlings so far exhibit no variations, but promise to come quite true from seed, and to be uniform in character.

1c. Seedlings raised by crossing No. 1 with pollen from white-flowering *Solanum Commersoni* at Reading in 1906.

1d. Seedlings from No. 1 crossed with pollen of *Solanum tuberosum*.

2. "*Solanum tuberosum* (new wild species)" collected in Mexico. Grown from seed saved at Vermont in 1906.

3. *Solanum Maglia*. Grown from tubers received from Mr. Baker of Kew in 1886.

4. *Solanum verrucosum*. Grown from tubers raised from seed received from Vermont Agricultural Experiment Station, 1906.

4a. *S. verrucosum* seedlings from seed saved from No. 4 at Reading in 1906.

4b. *S. verrucosum* raised from seed received direct from Vermont, 1906.

5. *S. polyanthemum* from seed received from Vermont in 1906.

5a. *S. polyanthemum* from seed saved at Reading from tubers raised from No. 5.

It is remarkable that seedlings of all the above wild types appear to come true and quite uniform, when it is remembered that in the case of no cultivated Potato do the seedlings come either uniformly true to each other or to the parent.

A hearty vote of thanks was accorded to Mr. SUTTON for his very interesting and comprehensive exhibit.

HORTICULTURAL CLUB.

LECTURE ON SMALL HOLDINGS.

MAY 14.—The usual monthly dinner of this club was held at the Hotel Windsor on the above date, Mr. Harry J. Veitch presiding, whilst among the guests were the Right Hon. Jesse Collings, M.P., Messrs. R. Winfrey, M.P., E. Hudson, William Robinson, G. Meldrum, G. Hurd, and others interested in the question of "Small Holdings." This subject was opened by Mr. P. Anderson Graham in a brief address, in which he referred to the historical aspect of the question, prior to the Act of Parliament involving the enclosure of large areas of common land. This step, though beneficial in some respects from an agricultural point of view, involved the great disadvantage of withdrawing from a very large number of men just that amount of aid in the shape of free pasture for cattle, &c., which enabled them to hold their own. The compensation given them for this only afforded temporary relief. Many attempts have been subsequently made to cure the consequent evil of depletion of the rural population, but with little success. The discussion eventually resolved itself into an exchange of decidedly conflicting views as to the reason. Mr. Graham himself appears to be inspired with anything but sanguine hopes of a restoration to previous conditions of rural farming on a small scale, the old factors having entirely disappeared in favour of new ones which are antagonistic to that quiet sort of life which formerly prevailed with rural people, many of whom were content to live and die, it might be, in the parish they were born in, the holdings passing on from generation to generation. The quality of the land was also a material factor in the problem, and in the cases cited where success had attended the acquisition of land and its distribution among small holders, they were mostly sufficiently near to towns to admit of intensive culture of market produce at a profit.

Mr. Winfrey, M.P., followed Mr. Graham, and, as one connected with the present Government, gave some particulars of what had been done by letting acquired areas on terms which assisted those to commence as small farmers who wished to do so. All these arrangements, however, appeared to be made on the basis of rental, and not of out and out acquisition; and Mr. Jesse Collings, following Mr. Winfrey,

advocated in the most eloquent manner the need of absolute ownership as an incentive to that thoroughgoing industry and thrift which is essential to success. No man, he contended, will devote the proper amount of labour to a holding which is in any way subject to another man's control as regards possession, knowing that sooner or later he may see the fruits of his energy and the improvements in the holding resulting therefrom go to benefit another. All tenancy arrangements made so far, he maintained, were subject to this drawback. The only proper way was to provide the willing man, having but little capital, with the purchase money, which should be secured on the land itself and be repayable on easy terms. Given such conditions, Mr. Collings maintained that the present evil would right itself, and the rural district would become repopulated with a contented and thriving community of farmers and small holders.

The eloquence with which Mr. Collings discussed this subject with which his name has been so long associated was most impressive, but not a few of his hearers differed widely from him in his conception of the percentage of men who would rise to his ideal and profit, as he assumed, to the utmost by the facilities afforded. The failures he estimated at but a small percentage, and he laid but little stress upon the evils and troubles attendant upon permanent ownership granted to undeserving or incapable persons. Mr. Graham, in his subsequent reply, differed entirely from the optimistic views which had been expressed. The discussion, in fact, terminated in two diametrically opposed views, without a definite summing up, and the Rev. G. H. Engleheart expressed the wish of all that the subject might be further ventilated on a future occasion.

ROYAL NATIONAL TULIP.

MAY 22.—The fourteenth annual exhibition of this society was held in the gardens of the Royal Botanic Society, Regent's Park. The competitive exhibits were not numerous, but the number of entries showed a slight increase on those of last year. A good attendance of visitors was seen in the exhibition during the afternoon. Non-competitive exhibits were very finely staged by trade-growers.

COMPETITIVE CLASSES.

In the important class for 12 dissimilar rectified Tulips, there were five entries, and the first prize was won by Mr. W. WHITTAKER, Hull, Cheshire; 2nd, Mr. A. D. HALL, Harpenden.

In the smaller class for six similar blooms as in the foregoing, Mr. J. W. BENTLEY, Castleton, Lancashire, won the 1st prize, and Mr. HALL was again awarded the 2nd prize.

The best three blooms of feathered Tulips were shown by Mr. HY. WILLAKER, Harpenden, and Mr. HALL was again second, but Mr. HALL was first in the class for three flamed varieties, Mr. WHITTAKER gaining the 2nd prize.

In the class for six dissimilar breeder Tulips, Miss WILLMOTT secured the 1st prize, and Mr. WHITTAKER the 2nd.

Mr. WHITTAKER was first for three varieties, thus changing positions with Miss WILLMOTT, who was awarded the 2nd prize.

Only one entry was seen in the class for six Darwin varieties, Mr. LOVAT, Oxford, exhibiting very fine blooms of Loveliness, Grand Monarque, Fontanella, Europe, Gretchen, and Flambeau, all really good varieties.

In the class for 12 varieties of garden Tulips there was again only one entry, but the exhibit which was from Mr. W. C. BULL, Ramsgate, was very good.

The exhibit of 12 varieties of Darwin Tulips from the same exhibitor was excellent, but there was no competition, and this gentleman was again the only one exhibitor in a class for one variety arranged for effect. Mr. BULL was awarded the 1st prize.

TRADE EXHIBITS.

Messrs. HOGG & ROBERTSON, Dublin, made a grand exhibit of Tulips, and very fine blooms of the St. Brigid Anemones. (Large Silver-Gilt Medal.)

A Certificate of Merit was given Messrs. HOGG & ROBERTSON for Scotia, a fine scarlet Tulip with yellow markings.

Messrs. R. WALLACE & Co., Colchester, made a fine exhibit of Darwin and late-flowering varieties of Tulips. (Large Silver-Gilt Medal.)

Messrs. BARR & SONS, Covent Garden, made a very extensive exhibit of these flowers, of which striped varieties were a great feature. (Gold Medal.)

Messrs. W. PAUL & SON, Waltham Cross, put up a nice group of Roses, amongst which *Hiawatha* was in splendid condition. (Silver-Gilt Medal.)

Messrs. H. LOW & Co., Enfield, exhibited a group of greenhouse flowering plants. (Large Silver Medal.)

Messrs. J. PEED & SON, Norwood, had an exhibit of Gloxinias, also a group of Japanese Maples, and another of rock plants. The Gloxinias were exceptionally fine. (Gold Medal.)

ROYAL METEOROLOGICAL.

MAY 15.—The first of the afternoon meetings for the present session was held on the above date at the society's rooms, 70, Victoria Street, Westminster, Dr. H. R. Mill (president) in the chair.

Dr. Mill read a paper on "The Standard Rain Gauge, with notes on other Forms." When the late Mr. Symons founded the British Rain-fall Organisation 47 years ago, such observations as were then being carried on were made with rain gauges of the most varied patterns, set up at any height from the ground that suggested itself to the observer, and read irregularly at almost any hour of the day or night. Since that time there has been a steady approximation to uniformity, and now the greater number of rain gauges in use are of a few definite patterns, set for the most part at nearly the same height above the ground. Dr. Mill strongly recommends the Snowdon pattern rain gauge, which is 5 inches in diameter, has a vertical rim to the funnel of 4 inches, and has an inner can and also a bottle. He does not recommend rain gauges with shallow funnels, nor the Howard and Glaisher patterns.

Obituary.

GEORGE ROEMER.—There died on May 17 last the well-known florist and nurseryman, George Roemer, of Quedlinburg, in the 41st year of his age. The firm of which he was a member is celebrated for its superior strains of Cinerarias, Primulas, winter-flowering and other Stocks, Asters, and flower seeds in general.

ENQUIRIES AND REPLIES.

CAN any reader inform *W. M.* how to prevent maggots from entering drawers used for the storing of seeds?

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

AGREEMENT RESPECTING REPAIRS TO NURSERY BUILDINGS: *W. D. T.* You had better consult a local surveyor, who will inspect the buildings, and see if their condition is in accordance with the terms in the agreement.

ASTERS AND STOCKS: *F. E. S.* There may be wireworms in the soil, but whether this is the case, or the failure is due to fungus disease, it is impossible for us to say, unless we receive specimens for examination.

BRACKEN FERN: *H. C. T.* *Pteris aquilina* is difficult to raise from spores. The soil in the spore-pans should be sterilised, and the pans stood about one quarter their depth in other receptacles of water. This will provide sufficient moisture, and prevent the spores being washed away by the watering can. The best plan of establishing this plant is to remove whole sods with the rhizomes and to plant these bodily in their new quarters.

CELOSIA PLANTS UNHEALTHY: *E. G.* No disease caused by insects or by fungi is present on the plants. The unhealthy appearance suggests injury from fumes arising from the heating apparatus.

CUPRESSUS LAWSONIANA VAR.: *A. H.* We can find no trace of injury by insects on the shoot submitted, and the plant is apparently either constitutionally wrong, or there may be something injuring its roots.

HYBRIDISATION CONFERENCE: *C. A. McC.* The report of this meeting, and also all other publications of the Royal Horticultural Society, can be obtained from the secretary, Rev. W. Wilks, Royal Horticultural Hall, Vincent Square, Westminster, London.

INSECTS ON HORSE CHESTNUT: *Waldegrave.* The specimens you send are common weevils. See answer to *H. P.* in last week's issue.

MARKET-GARDENING: *Samuel Amelour.* We should advise you to make sowings of the following varieties of Peas at once: Chelsea Gem, Daisy, and Omega; the last-named Pea is a variety of the Ne Plus Ultra type, growing 2½ feet high. Chelsea Gem and Daisy attain to an average height of 1 foot and 2 feet respectively, and, therefore, may be sown in rows at from 18 inches to 24 inches apart. Autocrat is another good late Pea of the Omega type, but grows 6 inches higher; it is a prodigious cropper, producing large, handsome, well-filled pods of fine quality Peas. Potatos Goldfinder and Up-to-Date will suit your purpose in every way, being good growers and heavy croppers. The tubers are of large size, good shape, and firm in quality; if properly cooked, they become like balls of flour. You should make liberal plantings, as soon as possible, of Early London, Walcheren, and Autumn Giant Cauliflowers, afterwards planting Broccoli of the following varieties, which will yield an almost unbroken succession of "heads" from the end of July next until June, 1908, viz.: Self-protecting, Michaelmas White, Autumn White, Winter White, Frogmore Protecting, Champion, Eclipse, Wilcove White, Mammoth Spring White, Model, Evesham Giant White (of Self-protecting habit turning-in in May), Mont Blanc, and Late Queen. *Kales:* Cottager's and Scotch (green curled), also Colewort Rosette and Hardy Green. *Cabbages:* Ellam's Dwarf Early Spring and Enfield Market will answer your purpose. *Savoy:* Early Covent Garden strain, Drumhead, Green Curled, and Dwarf Elm are good varieties of this hardy green vegetable to rely upon for yielding satisfactory supplies of good, solid "heads," no matter how severe the winter may be. *Beet:* Covent Garden Red and Pine Apple are suitable varieties to grow, and the seed should be sown at once. A month or six weeks earlier would have been better.

MUSCAT GRAPES: *Muscat.* The unhealthy appearance of the leaves is due to some defect in cultivation, and not to excess of air. Better drainage of the border would probably prove beneficial.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time; they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **PLANTS:** *F. G. B.* 1, *Veronica gentianoides* alba; 2, *Ajuga reptans*; 3, *Alyssum saxatile*; 4, *Arenaria grandiflora*; 5, *Spiræa Thunbergii*; 6, *Exochorda grandiflora*.—*H. E. A.* *Orobanche cœrulea*, a parasitic plant introduced in the potting soil.—*F. R.* 1, *Scilla campanulata* varieties; 2, *Ruscus aculeatus* (Butcher's Broom); 3, *Cercis siliquastrum* (Judas Tree); 4, *Pæonia tenuifolia*; 5, *Anemone alba*; 6, *Genista hispanica*; 7, *Cardamine pratense* flore plena; 8, *Euonymus latifolius* variegatus.—

D. R. *Salvia leucantha*.—*G. H.* 1, *Coleonema* (Diosma) album; 2, not recognised.—*W. R.* 1, *Muscari comosum*; 2, *Dipcadi serotinum*.—*K. and B.* *Abies magnifica*.—*J. S.* 1, *Ruscus Hypoglossum*; 2, *Leucothoe Catesbaei*; 3, *Pinus excelsa*; 4, *P. Laricio*; 5, *Cryptomeria japonica*; 6, *Pseudotsuga Douglasii*.—*W. G. S.* 1, *Odontoglossum gloriosum*; 2, *O. Andersonianum*, a very good variety.—*T. T.* 1, *Bletia hyacinthina*; 2, *Eria convallarioides*; 3, *Sarcanthus teretifolius*; 4, *Luisia volucris*; 5, *Macradenia lutescens*; 6, *Gongora casidea*.—*Constant Reader.* Yellow Banksian Rose.—*A. M.* 1, *Ruellia Portellæ*; 2, next week; 3, *Ribes alpinum*; 4, *Ribes aureum*; 5, *Scilla campanulata*; 6, *Euphorbia pilosa*.—*Salop.* 1, *Cattleya Mossæ*; 2, *Odontoglossum triumphans*; 3, *O. crispum*; 4, *O. cirrosum*; 5, *O. odoratum*; 6, *O. Coradinei*; 7, *Cypripedium Mastersianum*.—*H. J. W.* *Oncidium prætextum*.—*C. Sussex.* 1, *Veronica gentianoides*; 2, *Hemerocallis* variety; 3, *Staphylea colchica*; 4, *Prunus sinensis*, double white variety; 5, *Symphytum officinale*; 6, *Lonicera* species.

NECTARINE FRUITS CRACKING: *Cork.* The fruits may crack at the stage yours have done from a variety of causes. The most common cause is that of allowing the border to get too dry, and then flooding it with water, which has the effect of making the fruits to swell too quickly, and the skin being unable to expand at the same rate, cracking ensues. It is good practice to allow the trees to grow rather more slowly during the time when the "stones" are forming within the fruits, lessening the atmospheric temperature in the house for this purpose by the employment of freer ventilation. We do not know a variety of Nectarine bearing the name Princess of Wales. There is a Peach known by that name, but we suspect the Nectarine you have in cultivation is that known as Prince of Wales.

PEACHES INJURED: *Peach.* The injury is due to gumming, which has resulted owing to the presence of canker in the stem. The canker is too deeply seated to be easily cured. When gumming appears on the stem or branches, the tree ceases to thrive and should be rooted out.

PEAR LEAVES INJURED: *A. C. C.* The mischief has been caused by the Pear-leaf blister-mite. Collect and burn the injured leaves and fruits. Drench the trees next winter with Bordeaux mixture.

SLUGS AND SNAILS: *A. S.* Starlings, thrushes and blackbirds are the principal natural enemies of slugs and snails, but toads and frogs also kill a large number of these pests. Toads hibernate during the winter, and often hide themselves during the daytime, therefore they may be present in a garden, and yet escape notice. Cats will sometimes attack toads, but not often. Light boards laid along the sides of the beds in a garden have been found to be the most useful traps for slugs. In one garden where this means of capture was adopted, upwards of a thousand slugs were found beneath the boards each morning, and by this means they were ultimately exterminated.

TOMATO LEAVES: *J. B.* You must send better specimens. The few leaves that were wrapped in paper were quite insufficient for proper investigation. Cut off a shoot with leaves, and pack them in damp moss in a wooden box.

VINE LEAVES INJURED: *W. M.* There is no fungus present and the plants do not require spraying with a fungicide. They have the appearance of injury by fumigation. Apply more ventilation to the structure in which they are growing.

WILD FLOWERS: *W. M.* The most suitable work for use in identifying British native plants is Bentham and Hooker's *British Flora*. This is published in two parts, one consisting entirely of illustrations. They can be obtained from our publishing department, price 9s. 4d. each volume, free by post.

COMMUNICATIONS RECEIVED.—Nectarine—*F. M.*—*T. H. C.*—*W. J. R.*—*Hodshill*—*Miss M. Gurney*—*H. G.*—*Messrs. Sander & Sons*—*Constant Reader*—*Royal Horticultural Society*—*W. W.*—*The White City, Limited, Manchester*—*J. V. & Sons*—*F. Mason Good*—*W. B. Hartland*—*H. Morgan Veitch*—*J. C.*—*F. G. T.*—*W. R.*—*A. D.*—*W. R.*—*Galloway*—*Kyle*—*S. Kockridge* (California)—*W. E. B.*—*T. W. B.*—*R. P. B.*—*I. I. L.*—*S. A.*—*W. D.*—*E. R. F.*—*W. E. G.*—*R. P.*—*T. G.*—*E. F.*—*J. C. W. & Sons*—*E. D. & Son*—*G. B. G.*—*J. F.*



THE

Gardeners' Chronicle

No. 1,066.—SATURDAY, June 1, 1907.

CONTENTS.

Birmingham flower shows ...	851	Phaius species and hybrids ...	818
Books, notices of—		Rhododendron hybrids ...	841
The Book of Vegetables ...	842	Rosary, the—	
Country garden, the ...	846	Cultural notes for	
Covent Garden		June ...	845
"empties" ...	850	Rose Aennchen Müller	849
Enkianthus, the genus ...	844	Secret Commissions ...	851
Flowers in season ...	850	Sinningia Helleri ...	842
Fruit pests of the season ...	848	Societies—	
Frost at Whitsuntide ...	851	Kew Guild ...	859
Lilium auratum at Tittenhurst gardens ...	844	Royal Horticultural	852
"Linnaeus" Celebration at Upsala ...	849	Temple Flower Show	848
Obituary—		Week's work, the—	
Johnson, E. Ranger ...	860	Flower garden, the ...	846
Orchids, a sale of ...	850	Fruits under glass ...	847
Orphan Fund, Royal Gardeners' ...	849	Hardy fruit garden ...	847
		Kitchen garden, the ...	847
		Orchid houses, the ...	846
		Parks and gardens ...	847
		Plants under glass ...	846
		Wisley Research Station	850

ILLUSTRATIONS.

Brasso-Cattleya Mrs. J. Leemann var. Rajah ...	851
Lælio-Cattleya "Golden Glory" ...	857
Lilium auratum in the flower-borders at Tittenhurst ...	846
Odontoglossum crispum, "Lord Cromer" ...	852
Odontoglossum crispum, "Prince of Asturias" ...	858
Odontoglossum x Phoebe magnificum ...	855
Phaius species and hybrids ...	848
Primula sibirica, an improved form of	850
Rose Aennchen Müller (Supplementary Illustration)	
Sinningia Helleri ...	842
Viola gracilis ...	848

HARDY RHODODENDRON HYBRIDS.

THE various Rhododendron hybrids cultivated in gardens have been derived from few species, but the parents, though few in number, possess great divergence in the colour of their respective flowers. Repeated crossing and intercrossing have resulted, therefore, in the raising of varieties whose flowers vary from pure white through all the shades of pink, lilac, and red to deep crimson and purple. Up to the present time no hardy yellow-flowered Rhododendron has been raised, though the use of such species as *R. campylocarpum* and *R. Dalhousiæ* may eventually furnish this colour. A good yellow flower is hardly probable just yet, for it takes at least seven years from the seed before the inflorescence of a Rhododendron plant is produced, and perhaps seven or ten years more must elapse before the immature or weak yellow colour in the first seedling can by recrossing be developed into the full, rich shade that is desired. Blue, or rather purplish blue, has been obtained in some varieties to a certain extent, but the colour was considered unsatisfactory and the varieties have not been perpetuated by the raisers. A Rhododendron with flowers of the blue colour of *Gentiana acaulis*

or of a deep blue Hyacinth would be an acquisition, but this is scarcely probable, as the intermixture of purple in most of our hardy Rhododendrons is too strong to be entirely eliminated. The standard of perfection in a hybrid Rhododendron is a free-branching habited plant having good foliage and conical trusses of closely-set flowers, borne in an erect manner well above the foliage. The colour of the petals should be true, and should be either one which pleases when closely inspected or which is effective when seen from a distance. For instance, shades of pink or rose are pleasing when seen near, but others of red and crimson tints do not impress one greatly when closely inspected, although seen at a distance of, say 30 yards or 50 yards they surpass in their beauty those of every other colour.

The species that have been used in the raising of the majority of our hardy hybrid Rhododendrons are *R. arboreum*, *R. campanulatum*, *R. catawbiense*, *R. caucasicum*, and *R. ponticum*. Other species have also been used in recent years, but the above mentioned are those that were first crossed, and in nearly all the hardy hybrid Rhododendrons the influence as parents of some one or another of these can be traced.

Rhododendron arboreum is a native of the Himalayan region, and its seedlings vary considerably in the colour of their flowers, but the type has petals of a bright, blood-red hue, and bold, thick leaves, green, or sometimes brownish-green above, and silvery beneath. It develops into a tree 30 feet to 40 feet in height: it is not hardy in this country, except in a few favoured parts in the south and west. Its influence, however, on our hardy Rhododendrons can be clearly traced, as the majority of the best red and pink varieties are indebted to this species for their colouring. The first hybrid of which there is any authentic record is *R. altaclerense* x (*Botanical Magazine*, t. 3,423), obtained by crossing *R. arboreum* with *R. ponticum*, and which bears bright-scarlet flowers. It bloomed for the first time in 1835 at Highclere, where it was raised. This was closely followed by *R. nobleanum* x (*R. arboreum* x *R. caucasicum*), a hybrid having crimson-coloured flowers that open early in the year. The raising of these first hybrids is said to be due to the then Lord Carnarvon, who suggested that if *R. arboreum* was crossed with some of the hardy species the beauty of the one might be combined with the hardiness of the other, and the results have proved the value of his suggestion. Other hybrids that show the influence of *R. arboreum* are *atro rubrum*, *Russellianum*, *Grand Arab*, *Sun of Austerlitz* (red); *Lady E. Cathcart*, *John Henry Agnew* (pink); *Baron Osy*, white with dark spots; *Blanche Superbe*, &c.

R. campanulatum is also a native of the Himalayan region, and usually makes a large bush 6 feet or more in height, but plants have been known to reach a height of 20 feet or more in this country. The flowers are of a lilac colour, with purple pots, and the leaves are nearly oblong in shape, and blunt, as a rule, at both ends. It has not been used much for hybridising, its two most typical progeny being *campanulatum pictum*—usually classed as a variety, but more probably a hybrid—bearing pale-lilac campanu-

late flowers with reddish spots; and *Jean Stearn*, with pure white petals marked with purple spots. This latter is a beautiful variety, but it is rather tender and a shy bloomer.

R. catawbiense was first introduced to this country from the United States in 1809, and has had more influence on the present race of hardy Rhododendrons than any other. It is one of the hardiest of the genus, and, flowering in late May and early June, its descendants are less liable to injury by spring frosts than the early-flowering varieties. The flowers are lilac or purplish in colour, and the leaves are variable in size and shape; usually from 4 inches to 6 inches in length, deep green in colour, soft and smooth to the touch, and, as a rule, turned downwards at the margins. It is a vigorous grower, and attains to a height of from 8 feet to 20 feet with age, with a proportionate diameter. The influence of this species in the hybrids has been altogether for good, as it has given hardiness, freedom of flowering, and bold, vigorous foliage. The inflorescence is borne in close, upright trusses, and a selection of hybrids of the *catawbiense* strain comprises those with flowers of practically all the colours to be found in the genus. The only defect—if it be considered one—in the *catawbiense* hybrids is that the lilac or purple colouring of the parent has been largely transmitted to the seedlings, so that all the red or crimson hybrids have a magenta or purplish tint. This, however, is not a glaring fault unless the flowers are seen near to those of a pure scarlet colour. The magenta-crimson shades of some of the *catawbiense* hybrids produce wonderfully good effects a little distance away. A few of these hybrids with their colours are album elegans, a. triumphans, Minnie, perspicuum, and Madame Carvalho (white); delicatissimum, luciferum, and Lady Hillingdon (blush); Everestianum, and fastuosum flore pleno (lilac); B. W. Elliott, Lady Armstrong, and roseum elegans (rose); atrosanguineum, Charles Dickens, H. W. Sargent, Sigismund Rucker, Mrs. Milner, and Caractacus (red and crimson); purpureum elegans (purple, &c.).

R. caucasicum was first introduced from the Caucasus in 1803. It is a dwarf species rarely reaching more than 3 feet in height, and thriving well under trees. The flowers are borne in loose trusses, and are rose-coloured on the outside, pinkish-white within, with a cluster of greenish spots in the throat. They open about the beginning of May. The hybrids that most strongly show the influence of this species are characterised by a dwarf and free-blooming habit, such as in the varieties *Prince Camille de Rohan*, *venustum* (*Jacksoni*) and *Zealand*, all the flowers of which are of rose or pink shades. Besides the few hybrids which show the dwarf habit of *R. caucasicum*, there are many others which have resulted from crossing it with *R. arboreum* and *R. catawbiense*, and the majority of these have never been named. Most of them come into bloom from the beginning of April to the middle of May: they are strong, free growers and profuse bloomers in districts where they are not injured by spring frosts. In colour the flowers range from pinkish-white to crimson, and every year specimens from various parts of the country, chiefly from

the warmer districts, are sent to Kew and other places for naming, but not one in a dozen has ever been named, though some of them are worthy of this distinction.

R. ponticum is rather peculiar in its distribution, being found in Spain and Portugal and also in Asia Minor, but nowhere between these countries. It was first introduced into England about 1763 from Asia Minor, and is now common all over the country, where its lilac or purple flowers are rather too evident sometimes, though for certain purposes, such as cover-planting, &c., it is invaluable, as it is never eaten by rabbits or other animals. The hybrids which show *R. ponticum* most strongly are *album grandiflorum*, Mrs. John Clutton, Mrs. Tom Agnew, *multi-maculatum*, *pictum*, and *Mum* (white); Viscount Powerscourt, and Michael Waterer (red), &c.

There are, however, many hybrid Rhodo-

which are the parents of the bulk of our hardy Rhododendrons, there are four other species that of late years have been used for hybridising. These are *R. Griffithianum*, *R. Fortunei*, *R. Smirnowi*, and *R. Thomsoni*. *R. Griffithianum* and its hybrids were described in the *Gardeners' Chronicle* for April 21st, 1906, p. 242.

R. Fortunei is a native of China, and is a free-growing species, with sweetly-scented seven-petalled flowers, each about 3 inches across, white, faintly tinged with pink. Many hybrids have been raised from this species, but none of them is of great importance, probably the two best are Mrs. Thiselton-Dyer and George Thiselton-Dyer, the latter having deep-rose coloured flowers with brownish spots, the former having much the same colouring but paler.

R. Smirnowi is a native of the Caucasus, and is a dwarf, bushy species with large

mentioned species and their hybrids have been re-crossed with the older strain, we may expect a wider range of colouring and considerable variation in both foliage and habit. With the possible exception of *R. Smirnowi*, the present hybrids of the four last-mentioned species are rather tender, but by combining them with the older race a new strain will be evolved combining the best characters of both types. *J. Clark, Bagshot.*

SINNINGIA HELLERI.

This most charming Gesneriad is uncommon. It was introduced to the Garden of the Royal Horticultural Society in 1826, and was figured as *S. velutina* in the *Botanical Magazine*, tab. 4212. In that work it is said to be the handsomest of the genus *Sinningia*, but in this statement the garden *Gloxinia*, now a *Sinningia*, was not taken into account. Though not so showy as the *Gloxinia*, this species is exceedingly attractive. It is best grown in a stove, but may be used for the decoration of the greenhouse while in flower. The two or three stems, into which the plant usually breaks, are quite short, each producing half a dozen dark, olive-green leaves, ovate-oblong in shape, and the finest nearly 1 foot long. The flowers open at any one time may number up to nearly two dozen on the same plant. The calyces are reddish in colour, the corollas, which measure over an inch across the mouth, are creamy-white, contrasting well with the dark green of the leaves. The plant is a native of Brazil, and our illustration at fig. 143 has been reproduced from a photograph taken of the smallest among a number of plants which flowered during the spring in the Cambridge Botanical Garden. The seeds were received from the Botanic Garden of Prague. *R. Irwin Lynch.*

[A new species (*Sinningia Regina*) having lilac-coloured flowers, was illustrated in these pages on Sept. 17, 1904, p. 201.—Ed.]



FIG. 143.—SINNINGIA HELLERI, AS CULTIVATED IN CAMBRIDGE BOTANICAL GARDENS: FLOWERS WHITE, WITH REDDISH CALYCES.

dendrons which do not show a predominance of any one species in them, and the exact origin of which it is difficult, or even impossible to trace. Such sorts as Baroness Rothschild, Baron Schröder, B. W. Currie, Countess of Tankerville, Duke of Connaught, Joseph Whitworth, Kate Waterer, Mrs. John Penn, Mrs. Tritton, and many others can scarcely be traced to any of the species I have mentioned. When one remembers, however, that it is now over 50 years since the first hybrid Rhododendrons were raised, and that crossbreeding has been going on ever since, it is not surprising that their origin should be difficult to determine. The possible combinations of the five species mentioned above are enormous, and no two seedlings are exactly alike. The total number of hybrid Rhododendrons raised is very large, though probably not 5 per cent. of them have been named.

Besides the five species mentioned, and

leaves, deep-green above, and covered beneath with a whitish, wool-like tomentum. The rosy-lilac flowers measure 2 inches to 3 inches across, and they are prettily fringed at the edges. The few hybrids that have been raised are of second-rate importance, but the influence of this species, if continued, will probably result in a good and very hardy strain.

R. Thomsoni is one of the Sikkim species, but it is a rather tender plant except in favoured districts. The leaves are broadly ovate, and the tubular flowers are of a deep blood-red colour, borne in loose trusses, and opening in April and May. The best hybrids are *Ascot* brilliant, with flowers of a vivid scarlet colour: the plant is rather tender; *Luscombei* (*R. Thomsoni* × *R. Fortunei*) with rosy-red, tubular flowers 3 inches across; and *R. F. Thiselton-Dyer*, deep-rose with a dark mark in the throat.

In the course of time, when these four last-

NOTICES OF BOOKS.

THE BOOK OF VEGETABLES.* By Allan French.

THIS is a practical handbook and planting table for the vegetable gardener. In many respects it is as useful to gardeners in this country as to those in the immense area of the United States, with its great differences in climate, altitude, and soils. It contains numerous shrewd remarks on garden practices, and many of them are much called for here by those persons who may be desirous of growing vegetables better than they have done, but have not much knowledge of the way to set about the work. In the preface the author tells us how to prepare the land and sow seeds, whether the garden is a small garden under spade cultivation, or a large one requiring horse labour for the heaviest kinds of work. The dates for seed sowing in different latitudes are stated, allowing six days' difference for each hundred miles of latitude—pretty much as we do in this Island. He is very insistent about the "summer mulch," that is, the loose crumb left on the surface of the ground after the seed is sown and drills filled in. For each kind of crop directions are given as to the proper distance of the rows from each other, determined by the height and spread (whether above or below ground) of the plants. Many hints are given about the sowing of seeds, depth of drills, use of manures, farmyard and commercial, and the thinning of seedlings. The list of vegetables mentioned is very comprehensive, and it contains many sorts besides those familiar to us in this country. All are alphabetically arranged, and thus easy of reference. The botanical and popular names, if any, are given, also the English garden names of most of the vegetables and vegetable fruits.

*Published by the Macmillan Company, New York, and Macmillan & Co., Ltd., London. Price 1s. 6d.

PHAIUS SPECIES AND HYBRIDS.

SOME of the more interesting examples of Orchid hybridisation are represented in the illustration (fig. 144), which clearly shows the characteristics of the parents reproduced in the offsprings. The flower numbered 2 is *P. Blumei*, var. *Sanderianus*; No. 3, *P. simulans* (better known in gardens as *P. tuberculatus*); No. 5 is *P. × Norman*, the offspring raised from the above-mentioned species. No. 4 represents *P. × Clive*, derived from the inter-crossing of *P. simulans* and *P. × Norman*, and thus representing three-fourths *P. simulans* and one-fourth *P. Blumei*. In this variety the sepals and petals have become broader and creamy-yellow in colour. The lip is very much broader and shorter, lighter in colour, and having a distinct tuft of hair like bristles in the throat, in every way illustrating

FRUIT PESTS OF THE SEASON.

"DON'T mention it" is the protest, uttered half in jest, but still with the shade of an old superstition clinging to it, when one speaks with gratification of immunity from some common trouble. Quite recently I ventured to remark in these columns that Apple and Plum trees were free from aphides. In my last article, however, I had already occasion to notice the arrival of the Plum aphis, and now it is my unpleasant duty to mention the appearance of its close relation, the Apple aphis, with various other pests. At present the aphis attack is comparatively slight, probably because the recent very cold and wet weather has not been propitious to reproduction by the viviparous females. But perhaps before these remarks are in print there will have been some warm weather,

Seedling, Lane's Prince Albert, and Bramley's Seedling are practically exempt at present. Nearly all were subjected to a severe and persistent attack last season.

With much regret I notice more damage from the caterpillars of the winter, bud, and pith moths than has been seen for some years in my oldest plantations of Apples. From Codling moth my trees have enjoyed a rare exemption, and leaf-eating caterpillars have not previously been very numerous. But those named above, and particularly the larvæ of the winter moth, are doing much damage to some varieties, and are more or less in evidence on nearly all. Bismarcks have the worst attack of these as of all other pests. They are bushes on the Paradise, and they are growing in the lightest part of the plantation, where the soil or sub-soil (a running



FIG. 144.—PHAIUS SPECIES AND HYBRIDS.

1, *P. × Harold*; 2, *P. Blumei* var. *Sanderianus*; 3, *P. simulans*; 4, *P. × Clive*; 5, *P. × Norman*.

the influence of the pollen parent, *P. simulans*. No. 1 is *P. × Harold* (*P. Blumei* × *P. × Norman*). Here is seen a similar reversion to the *P. Blumei* parent as is seen towards *P. simulans* in No. 4. The tube of the labellum has become longer and less broadened at the apex, and the sepals and petals are narrowed and much longer than in *P. × Norman*. There has been some variation in colour amongst seedlings from this cross, but the general characteristics of the plants have been the same. It may be of interest to note that in the foliage and habit of growth also the hybrids are intermediate in character between their parents. These hybrid Orchids are useful for decorative purposes, and thus are deserving of general cultivation in gardens where a demand exists for flowering plants during the months of February and March. *H. J. C.*

and some feats in fertility of reproduction by these marvels of fecundity. With me the attack is worst on Pond's Seedling Plums, and next on Monarch. Early Rivers and Czar have a little of it, but Victoria and Gisborne's none, or none worth mentioning. Spraying with a strong decoction of quassia and soft soap has been done, but most of the pests were protected in curled leaves.

On most varieties of Apples there is a slight show of aphis. It is worst on soft-leaved varieties, such as Bismarck, The Queen, Domino, and Newton Wonder. There is not much on Worcester Pearmain, Beauty of Bath, Mr. Gladstone, Irish Peach, Cox's Orange Pippin, Early Julian, Duchess of Oldenberg, or Warner's King; while King of the Pippins, Lady Sudeley, Blenheim Pippin, Ribston Pippin, Fearn's Pippin, Potts'

sand in which drainage has not been very successful) does not suit them.

As for the pith moth caterpillar, it was hoped that persistence, year after year, in cutting off all infested spurs and ends of shoots, had nearly extirpated it, as there was hardly any of it last year. Now, unfortunately, there is much on many varieties.

Before leaving the subject of insect pests, it seems desirable to mention a point in reference to the Black Currant mite which may not have been noticed by some growers. My plan, since an attack commenced among bushes quite mite-free when I bought them (raised in a nursery where there had never been any "big bud") has been to dig up every badly-infested bush, replacing it by a fresh one, in the winter, while picking off every isolated big bud found among

the rest of the bushes, going over them twice in the season. This spring I noticed, just when the leaves of sound buds were expanding, that many others, chiefly on stems near the ground, were ineffectively struggling to open, after having swollen nearly to the bursting point. Microscopical examination of several of these showed that they contained mites. They had been missed in two inspections, but betrayed themselves very distinctly when they had swollen in the effort to expand. My suggestion, therefore, is that growers should make a point of having every bush examined at this stage of seasonal development, and every non-expanded bud picked off and burnt, though without neglecting an earlier operation.

This unfortunately wet season, it is to be feared, is developing fungus pests in an extraordinary degree. I have found brown rot (*Monilia fructigena*) among a few Plums, all in one part of the plantation—an attack never noticed before.

Far worse is a bad attack of powdery mildew (*Sphaerotheca mali*) on some varieties of Apples, and a slight one on others. Until last season, no attack of this fungus was noticed, and then it was almost confined to Allington Pippin. All the whitened shoots were cut off and burnt, and it was hoped that the malady was suppressed; but this season it is in evidence more or less in all parts of my oldest Apple plantation. It is far worse on Bismarck than on any other variety, Allington coming next, then Cox's Orange, and Blenheim Pippin, growing close to Allington Pippin. Some varieties, including Worcester Pearmain, Irish Peach, Lady Sudeley, Stirling Castle, Lane's Prince Albert, and Bramley's Seedling are free from the attack.

American blight has never appeared in the plantation before this spring, and a few days ago I found traces of it on two trees, and may find it on more. There was none on the farm until it came on some crab stocks. All the affected parts, so far as could be seen, were cut off and burnt at once, the stocks being reduced to stumps; but ever since it has been very troublesome, requiring frequent dressing, in the piece of nursery ground in which young trees are raised, but has been kept out of all Apple orchards until this season.

Scab was extremely damaging to Apples and Pears last year, and there is every reason to expect a bad attack again this season, although the trees were sprayed with copper sulphate alone just before the buds burst. Already I find it on the leaves of a few varieties, especially the much afflicted Bismarck. There is also a little brown rot among the Apple trees.

Spraying with Bordeaux mixture and Swift's lead arsenate paste is now in progress among the Apple and Pear trees grown here, in the hope of checking scab and brown rot, while also poisoning the food of the winter moth, bud moth, and other leaf-eating caterpillars. The fungicide will be applied again two or three weeks later, with or without the lead arsenate, according to circumstances.

It may be useful to announce that Swift's lead arsenate paste, a well-tried American preparation, is supplied in this country now for the first time by Messrs. Strawson, of Queen Victoria Street, E.C., and possibly by other sellers of spray fluids and materials. It is much safer than Paris green in relation to the foliage.

If the wet weather continues, an extension of canker may be expected, though no signs of fresh attack have yet been noticed. King of the Pippins, Ribston Pippin, and Potts' Seedling are the only varieties very badly affected in my market plantations, though one of two Cellini Pippins in my home orchard has been destroyed by it, while the other is badly crippled.

Among Pears, grown merely for home consumption, the only noticeable fungus disease is scab, which is rampant on Glou Morceau and Marie Louise, but not very bad on any other varieties. It is already showing on the leaves

of the two varieties named, and some of the small fruit on a third variety seems to be affected by it. All Pears have been sprayed with Bordeaux mixture.

Apart from a slight attack of aphid on a few Black Currants, and mite among these and cobnuts, no appearance of pests among bush fruits has yet been noticed.

This account represents only my own plantations. In some other places a bad infestation of the Apple sucker appears to be in evidence; but I have not seen this pest this season, and it may be concluded that the time for the beginning of an attack is now past. In 1905 there was an overwhelming infestation of this extremely damaging insect; but either spring or subsequent winter spraying appears to have annihilated it. At any rate, not one was seen last season, and none has been found this year. *A Working Grower.*

THE GENUS ENKIANTHUS.

(Continued from page 311.)

E. quinqueflorus.—Usually a bush 1-1½ metres high, more rarely a small tree 5-6 metres tall. Leaves oblong or obovate-oblong, acuminate, 5-10 cent. long, entire, coriaceous, shining, strongly reticulate on both surfaces. Flowers usually in umbels of five, stalked, drooping, issuing several together from a bud enclosed in imbricate scales, of which the inner ones are lengthened into stalked oblong-spatulate or linear coloured bracts. Calyx-lobes lanceolate-ovate, varying in length and breadth. Corolla about 1 cent. long, usually pink or peach-coloured, often with white lobes; corolla-lobes obtuse, more or less recurved or spreading. Fruits angled.

Native of Hong Kong and South China, also commonly cultivated by Chinese. First flowered in this country in Mr. Knight's Royal Exotic Nursery, Chelsea, in 1814, from whose specimens it was figured in the *Botanical Magazine*, t. 1649.

E. quinqueflorus, Loureiro in *Fl. Cochinch.*, p. 277.

E. reticulatus, Lindley, *Bot. Reg.*, t. 884 and 885.

E. uniflorus, Benth (Hook, Lond., *Journ. Bot.*, i., p. 489) originated in a mistake and is *E. quinqueflorus*.

E. quinqueflorus, Lour., var *serrulatus*, E. H. Wilson (var. nov.) Differs from the type in its much less coriaceous, finely serrulate leaves, more or less villous on midrib below, and flowers of the purest white.

Hupei, Wilson, No. 92! Henry, No. 5,475! Yunnan, Henry, No. 11,009!

This is a very distinct continental form. My specimens were collected from a tree 6 metres high, growing in a ravine, south of Ichang, at about 4,000 feet. Seeds were gathered from this tree, and the plant is in cultivation with Messrs. Veitch.

Henry describes his 5,475 as a shrub 3-8 feet high. His 11,009, from the hills south of Mengtsze, alt. 5,000 feet, a bush 8 feet. This latter specimen is in fruit, and has the primary and secondary veins on the under side of the leaf densely covered with villous hairs.

PALIBINI (l. c.) refers Henry's 5,475 to the type *E. quinqueflorus*. Diels (*Engd. Jbrhrb.*, xxix., p. 509) refers this same number to the widely different *E. chinensis*, Franchet.

E. japonicus.—Usually a bush 1-2 metres high, with smooth, light red or yellowish bark. Leaves more or less lanceolate with petiole 2½-4 cent. long, 1-1½ cent. broad, finely serrulate, reticulate, villous at base of midrib on the underside. Flowers in umbels of 5-10 on spreading filiform pedicels 1-2 cent. long. Calyx-lobes triangular-acuminate, whitish. Corolla white, 6 mm. long and broad.

This is one of the best known species from Japan, having been first discovered by Sir Rutherford Alcock in 1859, near Nagasaki. It appears to be rather widely spread, having been found in the

island of Nikko, on Fusi-yama, and in the neighbourhood of Tokyo. In autumn the foliage assumes a bright yellow colour. *E. japonicus* was first introduced into cultivation in this country by Messrs. Standish, about 1869.

E. japonicus, Hook., f. *Bot. Mag.*, t. 5522
Andromeda japonica, Miquel l. c.

E. campanulatus.—A small tree 6-10 m. high; leaves elliptic-ovate, sub-acute, aristate-serrulate, narrowed at the base into a short glabrous or slightly hairy petiole, more or less reddish hairy below with a few scattered setulose hairs on both surfaces. Flowers numerous, racemose or racemously-umbellate. Corolla 1 cent. across, shortly campanulate, 5-lobed, dark red with 3 dark nerves on the tube answering to each lobe. Capsule ovoid, 5-8 mm. long.

This is the finest of the Japanese species and one of the best of the genus. It is very similar to *E. himalaicus*, but is easily distinguished by its longer and different-shaped fruits and much more finely-toothed leaves. A native of Northern Japan and the vicinity of Hakodadi, where it has been found by various collectors. In the southern provinces of Japan it is apparently only cultivated. It was introduced into cultivation in this country by Messrs. Veitch through the late Chas. Maries.

E. campanulatus.—Nicholson in *Dict. Gard.*, i., p. 510. *Bot. Mag.*, t. 7059.

Andromeda campanulata, Miquel, l. c., Maxim. in *Mel. Biol.*, viii., p. 618. Franchet and Savatier *Enum. Plant., Jap.*, i., p. 284.

E. himalaicus.—A large bush or small tree, often 7 metres high. Leaves varying from lanceolate to broadly obovate-elliptic, usually narrowed to both ends, acute or obtuse, serrulate, reddish hairy below. Flowers in terminal, pendulous, racemose or sub-umbellate clusters of 20, or even more. Pedicels 2 cent. long, slender. Calyx-teeth lanceolate or ovate-acute. Corolla 8-15 mm. broad, widely campanulate; colour varying from yellowish-salmon to orange-red, with numerous dark-red striæ; corolla-lobes variable in size, erect or slightly reflexed, darker in colour than the rest of the corolla. Style, stamens, and ovary more or less clothed with short, setulose hairs. Fruit nearly globose, about 6 mm. broad.

This species is the most widely spread of the genus, ranging as it does from Sikkim, Bhotan, and East Nepal to Western China, where it is abundant on precipitous cliffs from 8,000 feet to 11,000 feet. With its wealth of flowers in late June, and its wondrous autumnal tints, *E. himalaicus* is one of the most strikingly beautiful plants of the mountains of Western China.

It first flowered in the Edinburgh Botanic Gardens in June, 1879, and is figured in the *Bot. Mag.*, tab. 6460, from material supplied by Prof. Balfour. The Himalayan form is tender in this country, and very rare in gardens. The Western China form has been introduced into Messrs. Veitch's establishment, and will probably prove hardier than the Himalayan form.

E. himalaicus.—Hooker, f. et Thomson, in Kew, *Journ. Bot.*, vii., p. 125, t. 8.

Rhodoraceæ Griffith, *Posthumous papers*, vol. ii., p. 148, n. 717; and *Rhodora deflexa* Griff., l.c., p. 187, n. 969. *E. H. Wilson.*

(To be continued.)

LILIUM AURATUM AT TITTENHURST.

For the illustration (fig. 145) of *Lilium auratum* and its varieties flowering last summer, in the borders at Tittenhurst, Sunninghill, Berks, we are indebted to Mr. Joseph Timson, the gardener at that place, who informs us that the plants grew to a height of from 9 to 10 feet, and that the air was perfumed with the flowers. *Lilium auratum* is familiarly known as the golden-rayed Lily of Japan, and it has been stated that more than 5,000,000 bulbs of this and other species of *Lilium* are

exported every year from that country. There are numerous distinct varieties of *L. auratum* that are improvements upon the type, amongst which the following are best known:—*Platyphyllum* is larger and finer in all respects than the type, the flower being from 10 to 12 inches across. The segments generally are studded with crimson chocolate spots. *Pictum* is similar in form to the type, but the flowers are tipped with crimson at the ends of the yellow rays. *Rubro-Vittatum* has flowers that are studded with purplish crimson spots. *Wittei*, a white variety, has yellow bands without spots. *Virginale*, a large white flower, with a yellow band in the centre of each petal, is studded with white spots. A descriptive and illustrated article upon the Tittenhurst gardens was published in our issue for October 23, 1904.

quire no further attention until the autumn, except watering, tying, and the stopping of the growths. The later batch of forced Teas, Noisettes, &c., can now be removed into a cool-house, where they should be kept dry at their roots. After a few weeks, and when they show their new growths, cut out the exhausted wood, prune slightly back, afford a top-dressing, and keep them well syringed, when a further crop of good blooms may be expected. The Hybrid Perpetuals in pots can now be planted outside as soon as they are sufficiently hardened off: this type of Rose blooms freely but once in pots, therefore they will occupy room to no purpose if still allowed to remain in the plant-house. Roses on their own roots plunged outside will now be growing freely, and during this showery weather an occasional pinch of some approved fertiliser

now be completed. Endeavour to exterminate all insect pests, which, if combated early in the season, do not cause nearly the same amount of trouble later. Beds of Roses, either of standard or dwarf kinds, should be carefully examined, and in order that any suckers from their roots or stems may be removed.

Cuttings inserted in the open ground last October will now be mostly rooted, and a good number will be making top growth. Pinch back any of the long, straggling shoots, and thus induce a bushy habit of growth. It is better to defer transplanting these until the autumn. All outside Roses will be much benefited by an occasional mulching of manure and a top-dressing of dissolved bones applied at the rate of 4 oz. to the square yard in moist weather. These dressings will be of great assistance in pro-



FIG. 145.—*LILIUM AURATUM* AS CULTIVATED IN THE GARDENS AT TITTENHURST, THE RESIDENCE OF T. H. LOWINSKY, ESQ.

THE ROSARY.

CULTURAL NOTES FOR JUNE.

THE new growths of Roses generally have been much injured by late frosts, and even late as is the season, I should be tempted to cut the injured growths back to sound wood, for if the plants bleed a little, not much harm will result, and they will soon recover. Finish the planting of Tea and other sorts of Roses from pots, and afterwards well mulch the surface of the ground and make certain that all are carefully secured, especially standard plants, to proper stakes. All autumn and spring-grafted plants still in the houses or frames should now be removed out-of-doors and plunged; they will re-

will be helpful to them. Ply the hoe between the rows of seedling briars when the latter are well through the ground and also amongst all planted-out Roses. Standard Briars are now beginning to break into growth, and at the end of this month, or early in July, three of the stronger shoots nearest the top of the plant should be selected, and all below them removed. If a few good ripened scions of Teas and Noisettes can be had from under glass, and at the same time a few well-matured shoots on briar stocks, budding can be practised during this damp weather with every chance of success. However, budding generally should not be practised before the end of this month or early in the next. All work amongst budded, standard-and-dwarf Roses, including staking, tying, &c., should

ducing best quality exhibition blooms. When blooms or buds have been retarded by uncongenial weather, it is a difficult matter for the grower to determine what the quality of his blooms are likely to be at a given date. To guard against disappointment, it is necessary to have a good reserve of duplicates of the sorts intended to be shown. Trade growers and successful amateurs usually obtain their best exhibition blooms from maiden buds on the briar, but these are not usually available or ready for exhibition till well on in the season. To obtain the best results the plants must be given plenty of nourishment in the form of mulchings or top-dressings, from the time the bud is well developed until it begins to show colour.
J. D. G.

THE COUNTRY GARDEN.

WELL known as they are, and well written up as they are, the Japanese Chrysanthemums for early flowering out of doors have not found their way into country gardens so generally as they should, by a long way. We have nothing like them for sustaining an effect all through the autumn if they be well massed. It is a mistake, I think, to use them merely as plants here and there in a mixed border. To secure their full decorative value they should be made a prominent feature in the autumn garden. A well-thought-out colour scheme, restrained as to the number of colours used, but as brilliant as may be; such, for instance, as crimson, and gold and yellow, with a few of the brighter and redder bronzes. This is, in my humble opinion, the most striking and effective of all combinations. Some really good varieties would include Goacher's Crimson, Kuroki, Mytchett Crimson, Fleur Rouge, Crimson Marie Masse, Orange Child, Horace Martin, Guinea Gold, and Piercey's Seedling.

Every year, too, the single varieties are becoming greater favourites; these should certainly find a welcome place in the country garden, especially where a good supply of cut flowers has to be maintained. Elegans and Felix are in red and gold, M. Richardson is a bright pink, and so is Lady Smith. The old favourite, Mary Anderson, is always charming, and so also is the sulphur-yellow sport from it, known as Miss A. Holden. Well-rooted cuttings may be secured at the present time, but they should be established at once. I never disbud nor stop, as I think that for garden use a fine decorative display is of greater moment than large individual flowers. Even thus treated, however, many blossoms will measure 4 inches across.

A good deal has been written of late concerning the hardihood of the Camellia. I have seen it stated that it is as hardy as the Laurel, so long as it is not growing in a low-lying or damp locality. It is, at any rate, a delightful subject to experiment with; but to experiment with specimens that have been unduly weakened by artificial heat will need caution. They will have to be hardened by thorough ripening out of doors during the summer months. If necessary, they should be afforded the protection of a cold house the following winter, brought out again when fear of frost is over as a necessary precaution after this shelter, and then planted out in soil that has been well worked; henceforth, to be left undisturbed. I must confess English gardeners are not given to experimenting one half as much as they should; not only is it one of the most interesting and delightful phases of gardening, but much good may come of it. A hundred years ago, and more, that excellent old gardener, Philip Miller, pleaded for hardier and more vigorous treatment of those plants that in reality did not need high temperatures and coddling. The same plea would be appropriate to-day—we are still coddling and making tender, plants that do not need it. There is a real pleasure and interest in experimenting and finding out just how hardy are many of the subjects to which we are affording considerable heat. We realise that a plant, say, comes from India, and we imagine it cannot withstand our climate. If it should happen to hail from the Himalayas, the chances are it is absolutely hardy and able to withstand greater cold than it will ever experience in England, and the same may be said of natives of Japan and China. In many cases our efforts should exercise themselves in trying to obviate the evils of excessive dampness and moisture during the late autumn and winter. In a large number of cases damp will kill, but cold unaccompanied with excess of moisture may leave plants unscathed. Perfect drainage and raised beds, sometimes rockwork edgings, all prove of the utmost benefit, and the experimenter will do well to use them extensively. I may say that many plants are far more amenable to hardy, out-of-

door treatment in the rock garden than in any other position. Some gardeners will say that it is not worth while to trust plants of doubtful hardihood to the chances of a hard winter. I cannot agree with this; the careful training and acclimatising of plants to withstand even severe tests is, as I have already said, well worth the risk. I have been making some desperately sharp trials of plants by no means accounted hardy, in a cold greenhouse during this last winter, and I am delighted with the result. There is no need to say that the previous summer's treatment was a careful provision in the way of thoroughly ripening and preparing the plants for their winter ordeal. I contend you must even go back to the parent plants, and work up a supply from those that have never known a coddling and enervating treatment. Plants can be made wonderfully indifferent to even sharp changes of temperature if they are perfectly hardened by judicious training—but to excessive moisture, not so easily if it is foreign to their tastes.

I would greatly like to urge the increased beauty that is attained in the spring garden by making a freer use than rules in many places, of flowering plants that are not of a bulbous nature. Not for a moment am I decrying the beauty of the spring bulbous plants; but it is a pity, I think, to devote all the space to them to the exclusion of these others, and I would name *Orobis vernus*, *Doronicum austriacum*, *Erica carnea*, *Saxifraga ligulata*, and many others for free and generous use in the spring garden. *Practical Gardener*.

The Week's Work.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Richardia africana.—The latest batch of Callas should now be placed out of doors, and the amount of water afforded their roots gradually reduced until, as the foliage dies off, it is withheld altogether. After a rest, and before the roots become very active again, shake out the plants and re-pot them in a compost consisting of equal parts loam, leaf-soil, and manure from a spent Mushroom-bed, and then stand them in the open on a bed of ashes. This position will be suitable for them until towards the end of September, when they should be placed under glass and be allowed plenty of ventilation without much heat. If flowers of this plant are required before Christmas, place a number of the stronger crowns in a light house having an intermediate temperature, and ventilate the structure whenever possible to prevent the plants becoming drawn. If they are treated thus, and well provided with water and given a stimulant occasionally they will furnish flowers as desired. Another plan adopted by some cultivators is to shake the old soil from the crowns and to plant them in the open ground in a prepared border or trench, the latter being the better, as it allows water to be afforded easily in hot, dry weather. Under this system of culture the plants should be lifted and potted before the end of September, severing the roots and soil with a sharp spade some distance from the ball a few days previous to relifting them. After potting, shade the plants or place them behind a wall until they have recovered from the root-disturbance, but afterwards place them in full sunshine.

R. Elliottiana.—This species requires rather different treatment to *R. africana*. The crowns should be started into growth in spring in the same manner as is practised with *Caladiums*, and they should be grown under glass all the season, "ripening" the plants in autumn and storing them during the winter in a perfectly dry condition in an intermediate temperature till spring.

Salvia splendens grandiflora.—The bright scarlet flowers of this decorative plant are very valuable during the dark, dull days of late autumn and winter, and especially pleasing in artificial light, thus making it a valuable subject for indoor decoration. Rooted cuttings should be re-potted directly they are ready for a shift, for

on no account should the plants be allowed to become stunted in their growth. Afford pots of a liberal size to the plants of early batches, as these will grow into very large specimens by the autumn. Place them outside on asbes, as soon as the weather permits. Pinch the points out of the shoots several times during the summer, and syringe the foliage each evening to prevent red spider, for if this pest is present the leaves will turn yellow, thus causing a check. In the warmer parts of the country *Salvias* can be planted in an outside border, and lifted in September as recommended for *Richardias*. Other winter-flowering subjects, such as *Eupatoriums*, *Moschosma riparium*, &c., succeed under similar treatment, but the pinching of the shoots must not be continued too late in the summer, otherwise many flowering shoots will be destroyed.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Lawns.—Now that we may reasonably expect to have drier and warmer weather, the lawn mower should be adjusted so that it will not cut so low as it is doing at present. By leaving the grass just a little longer it will to a great extent prevent "burning;" the grass will be much more pleasant to walk upon and have a better appearance. Make the change of adjustment gradually, and the lawn will not then be less tidy than before. Tennis lawns, croquet grounds, &c., on which games are played, must of course be kept closely mown. When in use have the mower frequently oiled, or complaints will be made that it "goes hard." During the dinner hour the machine must be put in a shady place. Any portions of the lawns which may show signs of "browning" will soon improve if lightly dressed with some quick-acting artificial manure, such as guano, mixed with finely-sifted soil, applying water afterwards. All grass verges and edges of flower beds and borders should be frequently clipped, and the grass around trees and those places where the mower cannot be used should be cut regularly, or yellow patches will result.

Mignonette.—The next few sowings should be made in a cool position, such as a border on the north side of a wall. The soil must be trodden firmly and raked fine. Merely cover the seeds with fine soil, and if the soil is dry, water it through a fine rosed can. The earlier sowings will require watering during dry weather, or they will soon cease to produce flowers.

Gladiolus, *Gallonias*, &c., now require staking. This is often left until it is too late. The quality of the flowers suffer if the growths have been allowed to be blown down. Use short stakes at present and replace them with longer ones as the spikes require them. At this stage a mulching is beneficial.

Agapanthus umbellatus.—More use might be made of these stately flowers in the open flower garden. When planted out in a cool, partially-shaded soil they produce luxuriant foliage, and stouter flower stalks than when grown in flower pots. Although the *Agapanthus* is fairly hardy it is not advisable to leave the plants out for the winter even in Cornwall, as under these conditions they are late in starting into growth.

Biennials.—Seed may now be sown in the open border of such plants as Canterbury Bells, *Papaver nudicaule*, and *Hollyhock*. Where the latter plant suffers badly from the fungus disease, this may sometimes be prevented by sowing the seeds in a thoroughly prepared plot of ground, and after thinning out the seedlings allow some to remain and flower in the seed bed.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir TREVOR LAWRENCE, Bart., Burford, Surrey.

Dendrobium Phalanopsis has started to grow, and at first the young growths appear to be thin and weak, but if the plants are placed in a suitable atmosphere they will gain strength and swell rapidly. When the young shoots are a few inches high, numbers of young roots, push out from their base, and, before much rooting progress is made, those plants which require it should be repotted, and any not in need of re-potting should have the old material carefully picked out from between the roots and fresh compost afforded. The plants will thrive in

pots or shallow pans, but it is important that the receptacles should be small in proportion to the sizes of the plants. They should be filled to about one-half of their depth with drainage material, placing over this a layer of sphagnum-moss with some small crocks well mixed with it. Employ a compost consisting of three-parts fibrous peat and one-part chopped sphagnum-moss with some crocks of moderate size intermixed. The compost should be packed very firmly around the plants, as the roots prefer a hard material to one of a soft, spongy nature. If made quite firm, it will not retain moisture for any considerable length of time, and this will be conducive to the health of the plants. After repotting, place them in the hottest house, and, preferably, in a rather shady position, as when in the earlier stages of growth these plants have been exposed to plenty of sunlight, the young leaves have invariably become badly spotted and unsightly, but if towards the completion of growth the plants are placed in almost uninterrupted sunlight and an abundance of water is afforded at the root, the pseudo-bulbs will swell and become thoroughly consolidated, thereby enabling them to produce strong spikes and richly-coloured flowers. Until the plants are established in the new compost only a small quantity of water is necessary, but as roots become plentiful, and the growths make satisfactory progress, it may be afforded copiously. Other species of *Dendrobium* which require the same kind of treatment are *D. superbiens*, *D. bigibbum*, *D. lineale*, *D. Stratiotes*, and *D. Bensoniæ*. Such tall-growing plants as *D. Dalhouseianum*, *D. fimbriatum*, *D. f. oculatum*, *D. calceolus*, *D. clavatum*, *D. moschatum*, &c., make roots when the new growths are a few inches long, and will also require to be supplied with fresh rooting material at this season. The *D. macrophyllum* Veitchianum section appears to thrive best when placed in a light position near the roof glass of the intermediate house.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Young vines, which were raised from "eyes" last spring in pots or turves, and that have made growths 2 or 3 feet in length, will be in a fit condition for permanently planting into the vinery border. The border should be made up 2 feet 6 inches in depth, and it should be composed of chopped turf, adding to every 3 tons of the loam 1 cwt. of coarse-grade vine and plant manure, a liberal quantity of lime rubble, and should the loam be of a heavy nature, it may be improved by the admixture of some wood ashes. These ingredients must be well mixed together; it may be mentioned for the benefit of those who have not already made up the borders, that pieces of fresh turf, with the grass side down, should be placed over the drainage, proceeding afterwards to make up the border 3 feet in width and 2 feet in depth. Make the border very firm by beating and tramping as the work proceeds. Plant the vines 3 feet 6 inches apart on the top of this compost, spreading their roots well out, and cover with 6 inches of the finer parts of the compost. Make the soil over the roots moderately firm and tie the growths to the trellis. Apply a liberal soaking with warm water to settle the soil about the roots, keeping the atmosphere of the house moist and damp. Damp the paths and borders twice daily, and never apply fire heat. Shade the young plants from the sunshine if they appear to flag. Close the house early in the afternoon with sun heat. This system is to be preferred to that of planting in March vines that were raised in the previous year. If young plants are not in stock, they can be supplied by the nurserymen now equally as well as in winter.

Early Melons.—Plants carrying fruits which are now changing their colour require to be watered very carefully, as the roots are now less active than formerly. Do not restrict the water supply suddenly, but by degrees. Give just sufficient to keep the foliage green, never allowing it to flag. Keep the atmosphere much drier at this stage and leave the top ventilator partly open throughout the night. A mulch of moss litter or manure from a spent Mushroom bed spread over the surface of the bed will keep the soil from cracking and be beneficial in other respects.

Melons for successional crop.—Plants showing fruits should have the point pinched out of the leading shoot when within a foot of the top of the trellis, and the lateral shoots stopped at the leaf beyond the fruit. Tie up and regulate the young growth. Pollinate the female flowers at midday with pollen taken from the male flowers. Another method is to remove the petals from the male flowers and place the male in the centre of the female flowers. Do not allow one fruit to swell greatly in advance, but endeavour to obtain a "set" of three or four fruits on a plant at one time. Keep the atmosphere of the house rather dry when the plants are in flower, and ventilate it more freely. Let the atmospheric temperature at night be about 70°, and by day 85°.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Celery and Celeriac.—Celery plants that have been raised from seeds sown in February, as advised in a former calendar, and intended for the earliest crop, should now be ready for planting out in the permanent quarters that have been prepared for them. Sprinkle the plants liberally with soot, directly they have been put out and copiously watered. The plants of *Celeriac* raised from a sowing made at the same time as the Celery should likewise be planted out and treated as already described for the Celery. This batch of *Celeriac* will constitute the main crop.

Brussels Sprouts, Broccoli, and Borecoles should receive timely attention by planting them out as soon as they are ready for moving, particularly if they are still in the seed beds. Many things require attention just now, and these vegetables are therefore apt to be left in the seed beds too long; they consequently get dry at the roots and become drawn up weakly. Such plants are not suited to successfully withstand a severe winter.

Vacant ground.—Various plots of ground which have produced crops of Broccoli and similar vegetables are becoming exhausted. These should be relieved of the old stumps immediately, and prepared for crops of late Peas, Carrots, &c.

Destruction of weeds.—Close attention must constantly be given to all growing and young crops, by keeping them free from weeds and stirring the surface soil with the hoe. In very showery weather it is sometimes a difficult matter to get on the ground, therefore let every convenient opportunity for destroying weeds be utilised.

Runner Beans that have been started into growth in boxes should now be ready for planting out in prepared trenches, planting them at from 9 to 12 inches apart in double rows. As soon as planting is completed, place the sticks in position, as these will both help to protect them from frost, and prevent the risk of injury from winds.

Rhubarb.—Remove all the flower-stems that are showing, because these would weaken the plants if allowed to remain.

Maize.—If seeds have not been sown already, they should be sown at once in drills drawn from 4 to 5 inches deep, and 3 to 4 feet apart from each other. Plants that have been started into growth in pots or boxes, and are now being hardened off, should be planted out at the end of the present month. Maize or "Indian" Corn requires a hot season, but should be afforded occasional drenchings with water.

Rampion seed should be sown at the present time, and again after a fortnight. Make the surface soil fine and level before sowing the seeds. Rampion (*Campanula Rapunculus*) should be more generally cultivated, for both the leaves and roots are useful.

PUBLIC PARKS AND GARDENS.

By W. W. PRITTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Cycling in parks.—Cyclists are generally regarded as one of the most selfish classes of the community, whose disregard for the comfort and convenience of their fellows is only exceeded by their disinclination to walk where there is the slightest pretext for riding. It would almost appear as if in the eyes of the average cyclist, pedestrians had no rights whatever.

Such being the case, it is not surprising that cyclists have to be carefully regulated in public parks, otherwise they would monopolise every road and footpath in them. In the majority of parks cycling is, very rightly, prohibited altogether; whilst in some it is only permitted during the early hours of the morning, or restricted to well-defined parts of the park.

Excepting in very large parks, where there are broad carriage drives with side walks, it is inadvisable to allow cycling during the whole day. Visitors frequenting parks in the hope of enjoying a quiet walk, or a rest, should not be subjected to the annoyance of having to get quickly out of the way of a cyclist, or run the risk of being knocked down and injured. Once the feeling of security is done away with in a park, one of its greatest charms has been destroyed. Cycling even during early morning hours should only be tolerated on roadways over 20 feet wide; where they are of less width than that cycling should under no circumstances be permitted during any part of the day.

In some towns special cycling tracks are provided in recreation grounds, but unless these are fenced off in such a manner as to prevent children from straying upon them from the adjoining playing ground, they are a continual source of danger. Many years ago a cycling track was laid down in one of the recreation grounds here, but had to be abandoned on account of its being dangerous for children.

Taking everything into consideration, there is no reason why a public parks department should cater for cyclists, as they have abundant scope for their pastime in every highway.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bicton, East Devon.

Pears.—Trees that have set large crops of fruit should be examined and have their fruits thinned where necessary. Remove first those that are badly placed, as well as any showing signs of cracking or deformity. The Pear midge has not been especially destructive this season, and, with perseverance in destroying all fallen fruits, or, better still, picking them off and burning them as soon as they are noticed, this pest can be largely lessened, if not entirely eliminated. Robust trees may require some of their gross-growing shoots pinched to equalise the flow of sap, but defer much summer pruning till a later date.

Plums often set their fruits in such large clusters that it becomes necessary to severely reduce their number. The Czar, Monarch, Coe's Golden Drop, and Victoria are heavy croppers, and usually claim first attention in the matter of thinning. In thinning the clusters of fruits, a pair of Grape scissors will be found useful. Frequently on light, sandy soils, Plum trees on warm walls are badly attacked by red spider early in the summer, and where this happens do not wait until the trees show by their appearance that the pest is present, but ply the garden engine, hose, or syringe two or three evenings each week as a preventive. Keep the roots well supplied with water, and replace the mulching material if it has become exhausted.

Peach and Nectarine trees growing against walls demand almost daily attention in the matters of training, disbudding, thinning of the young fruits, syringing the foliage, and supplying the roots with water. In training the young shoots, great care is required, or their points may become broken. A strand of raffia tied to the fruiting wood at the base, and a second tie to the nearest wire will keep the young shoots in position. Where wires do not exist, a slender twig of privet or a thin piece of lath placed at either end under the old wood will secure the shoots, after the base has been drawn in to the wall with a strand of raffia, and this will be found better than nailing for the present. The removal of surplus shoots at this stage must be done with care, so as not to tear away the bark; they can be best removed with a sharp knife. Complete the final thinning of the fruits in late districts. Hoe and rake off any weeds. Apply a thorough watering if found necessary with water mixed with the drainings from a stable or cowshed, but avoid strong doses of liquid manure. After watering, apply a mulch of straw litter to a depth of about 2 inches. Wash the foliage every evening if convenient, directing the water well underneath the same.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

APPOINTMENTS FOR JUNE.

SATURDAY, JUNE 1—

Soc. Franç. d'Hort. de Londres meet.
German Gard. Soc. meet.

TUESDAY, JUNE 4—

Scottish Hort. Assoc. meet.
Nat. Amateur Gard. Assoc. meet.

WEDNESDAY, JUNE 5—

Bath and West. and Southern Counties Sh. at Newport (Mon.) (5 days).

THURSDAY, JUNE 6—Linnean Soc. meet.

MONDAY, JUNE 10—

Unit. Hort. Ben. and Prov. Soc. Com. meet.

TUESDAY, JUNE 11—Roy. Hort. Soc. Coms. meet.

WEDNESDAY, JUNE 12—

Roy. Cornwall Sh. at Liskeard (2 days).
Roy. Bot. Soc. Summer Exhib. (8 days).

THURSDAY, JUNE 13—

Colonial Exhib. at R.H.S. Hall, Westminster (2 days).

SATURDAY, JUNE 15—German Gard. Soc. meet.

WEDNESDAY, JUNE 19—York Gala (8 days).

THURSDAY, JUNE 20—Linnean Soc. meet.

MONDAY, JUNE 24—Midsummer Day.

TUESDAY, JUNE 25—

Roy. Hort. Soc. Coms. meet.
Brit. Gard. Assoc. Ex. Coun. meet.

WEDNESDAY, JUNE 26—

Colchester Rose Sh.
Richmond Fl. Sh.

THURSDAY, JUNE 27—

Isle of Wight Rose Sh. at Shanklin (provisional).
Canterbury Rose Sh.

FRIDAY, JUNE 28—Roy. Bot. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—58.1°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, May 29 (6 P.M.): Max. 48°;
Min. 56°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, May 30 (10 A.M.): Bar. 30.1; Temp., 55°; Weather—Cloudy.

PROVINCES.—Wednesday, May 29 (6 P.M.): Max. 53°; Ireland, S.W.; Min. 44°; Scotland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Bedding Plants, Bulbs, Lilies, Palms, Bays, Japanese Dwarf Trees, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

The Royal Horticultural Society's twentieth exhibition in the famous gardens of the Inner Temple is still open as these pages go to press. We are compelled, therefore, by exigencies of time and space to write of it almost upon first sight, and at such close quarters, if we may so express it, that it is difficult, perhaps impossible, to form a correct judgment as to its exact place in comparison with previous shows held on the same site. The Temple Show has become such an important institution, so comprehensive as an exhibition of British horticulture, it is hardly to be expected that each event should be greater or better than its predecessor. Rather is it a correct illustration of the changes that occur in the estimation entertained by the public for different types of plants. Except for such fluctuations, and

for the introduction of new species and home-raised hybrids, what should prevent every Temple Show being an exact reproduction of previous displays? The season of the year is the same (the show is only one day later than last year), similar plants are therefore in flower, and species that were out of season then are also out of season now. The conditions being so much the same, we are thus enabled to see from year to year what effect is produced by the vagaries of fashion, the enterprise of plant collectors, the skill of plant-breeders, and the care of the cultivators. In its testimony to high cultivation the present show is ahead of all its predecessors, and it is a most effective advertisement of the increased ability and skill of the practical gardeners in this country. Foreign visitors are greatly impressed by this feature



FIG. 146.—*VIOLA GRACILIS*: FLOWERS DEEP PURPLE.

of the show, and if visitors nearer home are not so quick to realise the high type of culture exhibited, it is because the progress is gradual, and therefore less perceptible to those who visit exhibitions at frequent intervals.

As showing how the introduction of new plants affects such shows, it is only necessary to refer to the many valuable species of trees, shrubs, and other plants which Messrs. James Veitch & Sons have introduced from China. Not only may such plants be seen in this firm's exhibits, but they are included in many others. The remarkable *Primula Cockburniana*, already illustrated in these columns, having vivid, orange-coloured flowers, but possessing a weak habit of

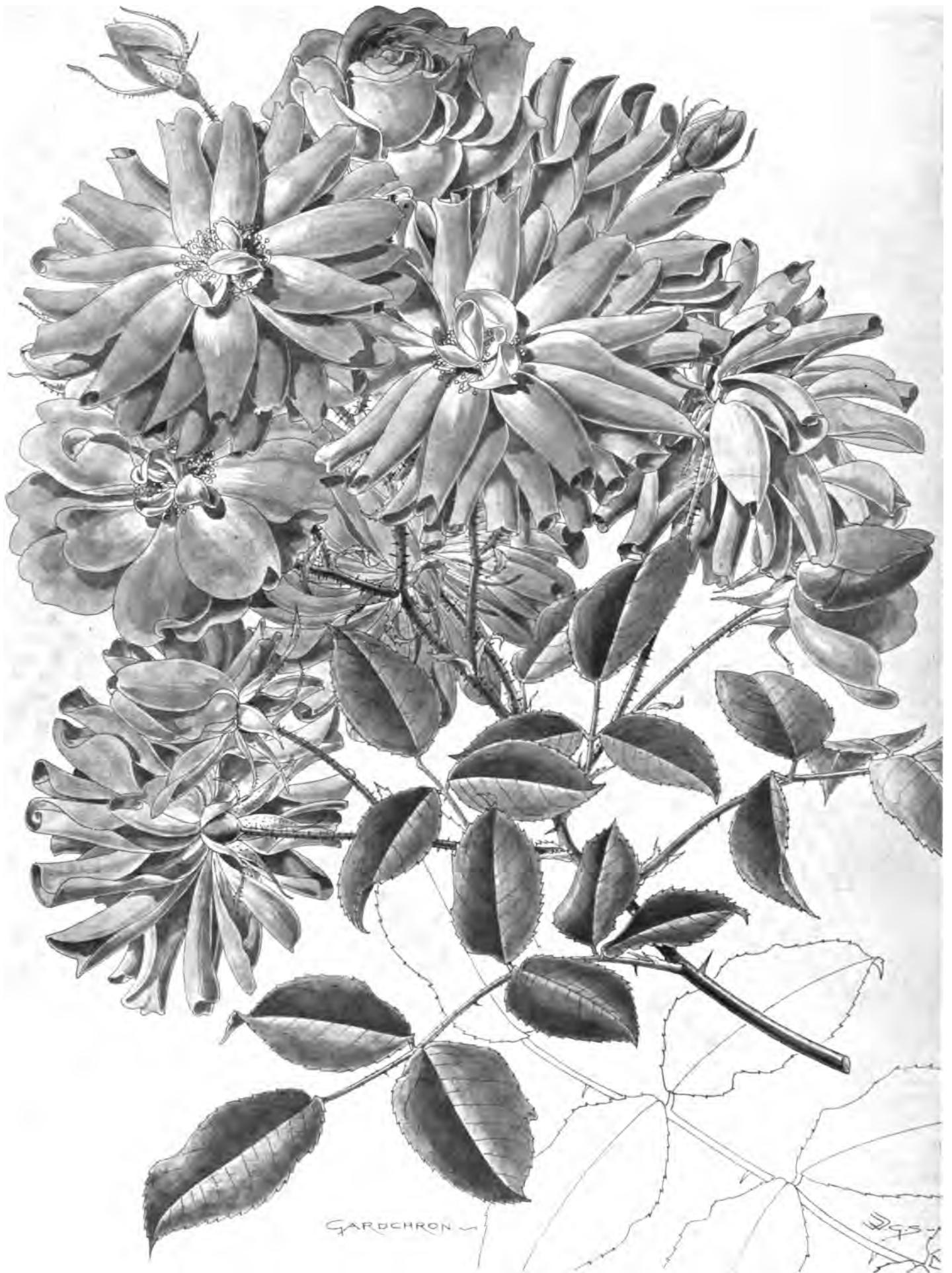
growth, which is not such as to make it a good garden plant, has been crossed with the strong-habited *P. pulverulenta*, and in the Temple Show of 1907 the first seedlings from this cross are shown by Messrs. Veitch under the name of *P. x Unique*. The seedlings appear to be almost perfectly intermediate between the parents, and it is not too much to say that at future Temple Shows visitors may expect to see groups of orange-coloured *Primulas* of a good habit and that are easy of cultivation. The vivid colouring of *P. Cockburniana* has suffered a little from the cross, but, having obtained the habit which was desired, the plant-breeder may be trusted to get back the original clear and vivid colour.

The effects of cross-breeding are more conspicuously evident in the Orchids than any other class of plants at the present day, and it is a fact that there has never been a better collection of Orchids exhibited at a Temple Show than that at present on view. In this connection we are sure everyone will congratulate Major Holford on the magnificent collection for which he has been awarded the Veitchian Cup, which this year was offered for the best exhibit of any kind contributed by an amateur. The collections of Orchids from Mr. Colman, Messrs. Sanders & Sons, Charlesworth & Co., Low & Co., Bull & Sons, are full of extraordinary hybrids obtained by purposeful cross-breeding. In Carnations, Roses, and Begonias great advancement may also be noticed, for in all these respects the exhibits are of higher quality and greater variety than formerly.

The excellent groups of *Hippeastrums* shown by Major Holford and Messrs. Ker & Sons afford further instances of advancement, and the same might be said of the *Cinerarias* from Messrs. Sutton & Sons, *Gloxinias* from this firm and Messrs. Peed, Cannas and other florists' flowers from Messrs. Cannell & Sons, *Rhododendrons* from Messrs. Waterer & Sons, R. & G. Cuthbert, and Mr. Chas. Turner, and others.

Quite of another description is the little *Viola*, reproduced at fig. 146 from a sketch made by Mr. Worthington Smith during the press of the opening day. It has bright, rich purple flowers, and Messrs. Wallace inform us that, on a rockery, the plant is exceedingly effective. It is remarkable for its extremely narrow leaves, which are very different in shape to the more oval foliage of the cultivated *Violas*. The species is not a perfectly new one, but it is rare and hardy, and may be recommended to cultivators who desire that their plants should possess distinct characteristics. The popular appreciation for hardy plants is well reflected in the Temple Show, and they are staged in numerous and comprehensive collections. What an amount of labour and expense is involved in the exhibition of such a rockwork as Messrs. Cutbush & Son have arranged and planted out of doors!

Fruit trees, laden with luscious fruits, and vegetables from such famous gardens as Aldenham and Welbeck, testify to the fact that horticultural skill is not wholly devoted to the production of ornamental plants and flowers, but also to the cultivation of crops of the greatest economic value.



NEW POLYANTHA ROSE "AENNCHEN MÜLLER," WITH REVOLUTE PETALS ; .
COLOUR OF FLOWERS, BRIGHT PINK.

A full report of the exhibition is printed on other pages, and it therefore only remains for us to thank the Society for the service it renders to horticulture by the holding of such exhibitions, and to congratulate the officials on another unqualified success. It is reported that the receipts on the first day again established a record!

The Orphan Fund.

It is a matter for congratulation that, as the result of the Festival dinner which took place last week, the Royal Gardeners' Orphan Fund has benefited to the extent of £1,000. We have in these columns so often urged the claims of the Fund upon the generosity of the horticultural public, it is a pleasure to know that in the present year its income is likely to be equal, or more than equal, to any previous record. All who take a proper interest in the welfare of gardeners' orphan children, left without any provision for their needs, will feel grateful to the Lord Mayor (Alderman Sir William Treloar), Sir Albert Rollit, and other gentlemen for the help they afforded on this occasion.

Mr. Edward Sherwood, as Treasurer, again referred to the disproportion existing between the amount raised by means of the annual festival and that obtained from regular subscriptions. Whilst the festival is responsible for £1,000, the whole of the annual subscriptions amount only to about £300. This state of things is not what it should be. The list of annual subscriptions could easily be doubled if gardeners could be brought to thoroughly realise their responsibilities. A subscription of five shillings each year is certainly within the means of every gardener holding a position of responsibility, yet it appears that only about one in ten contribute this amount.

It is in every way desirable that the efforts of the Executive Committee to raise an increased amount by subscriptions from gardeners themselves, should be successful.

In the meantime we are glad to know that the invested funds amount to upwards of £11,000. This may be regarded as sufficient at the present time, but it is important that the amount should be increased if the number of orphans dependent upon the Fund become more numerous.

The Proceedings at Upsala.

In our last issue we referred to the bi-centenary of the birth of Linnæus, and to the general desire of botanists in every country to fittingly celebrate the occasion. We are now in a position to publish some particulars of the proceedings at Upsala and Lund in honour of the great Swedish botanist.

The celebrations commenced at Lund, on Tuesday, May 21. Only a few strangers were present, but they received a cordial welcome from the Rector of the University, Dr. Ribbing. After examining the portraits and relics of Linné exhibited by Prof. Nerdstedt, a grandson of Linné's niece, the Rector entertained at lunch about 50 guests. A special train took the guests and some 300 students to Rashult, where Linné was born. An extraordinary scene was presented there. Three thousand people crowded the woody hill-side on which the house of Linné's father stands; flags were flying, the footpath was lined with bright little children in gay dresses, and the students, singing as they passed along the

path, were followed by the visitors. It was an unprecedented sight for quiet Rashult. Dr. Simmons, of Lund, botanist, delivered an oration on the life and work of Linné. Thereafter, a visit was paid to the church, of which the father of Linné was pastor.

Most of the foreign visitors arrived at Upsala on the morning of the 23rd ult., and were received at the station by the students carrying their banners. It was a remarkable scene. After singing a welcome, the students marched in a compact procession to the University. There was a small sprinkling of lady students, who doffed their college caps and shouted their hurrahs with as much enthusiasm as the rest. At midday the students filed into the Aula of the University, and were followed by the delegates. The galleries were already packed with ladies when the Prince Regent and members of his family entered. Every corner was filled and the splendid semi-circular Aula was a grand sight. The Rector, Dr. Schück, delivered an able address on Linné's life and an elaborate exposition of his labours. Thereafter, the delegates were received in the alphabetical order of their countries, one man for each country delivering a short congratulation. Sir Archibald Geikie's was, perhaps, the shortest address, but it was very appropriate, and was received with applause. The various addresses and medals were handed in as the delegates passed the Rector. It was a memorable assembly to all present. The foreign delegates passed into a smaller room, and were personally received by the Prince Regent, and at the close the Prince decorated several of them, among whom were Prof. Poulton and Mr. B. Daydon Jackson from England. In the evening the Rector entertained the visitors at dinner, at which only three toasts were proposed, one being the Linnean Society of London, to which Mr. W. Carruthers, F.R.S., as the representative of the society, replied.

Friday morning was ushered in with a salute of 21 guns from the castle. The event of the day was the promotion of many Swedes and foreigners to degrees in the faculties of theology, law, medicine, and philosophy. This took place in the ancient and beautiful Cathedral of Upsala, where Linné is buried, and where, in a side chapel, his monument, with the Sergel portrait, is erected. The members of the public who had access to the interior filled every place allotted to them. The students met in the University and marched in procession to the cathedral, followed by the foreign delegates. As soon as the Prince Regent and his party had entered, the ceremony began with religious exercises, led by the Archbishop. Then followed some charming music, which was renewed at intervals throughout the meeting. As each recipient had the hat, or, in cases of the faculty of his philosophy, the laurel wreath, placed on his head, a gun was fired from the castle. The following delegates from England were created doctors of philosophy:—Sir Arch. Geikie, Prof. F. Darwin, Wm. Carruthers, and B. Daydon Jackson. After the ceremony was over, the students and doctors returned in procession to the University. The students, with their banners and their white caps, presented a fine spectacle as they marched up the winding path leading to the University. They arranged

themselves in front of the grand entrance, the graduates being grouped on the steps. They again sang several pieces with beauty and energy. Such a scene could not be equalled in any University elsewhere. The University gave a dinner in the Aula, at which 400 guests were present, the Prince Regent and his party being in the place of honour.

The celebration of the Royal Swedish Academy of Sciences, of which Linné was a founder and its first president, was held on Saturday, the 25th ult. The proceedings took place in a large concert hall, which was crowded. The speaking and the music were better heard than in the large Aula of Upsala University. A large orchestra with a fine choir supported by some well-known singers, rendered admirably the music composed for the occasion. Count K. A. H. Mörner delivered an eloquent oration on Linné, narrating the events of his life and dwelling on the value of his works. The newly-struck Linnean medal of the Academy founded at this bi-centenary celebration was to be presented to Sir Joseph Dalton Hooker, whose labours in botany Count Mörner shortly and clearly stated. Amid the cheers of the audience he handed the medal to the British Ambassador at Stockholm. Great was the delight of the British delegates, who were more in number than those of any other country, and many were the congratulations received by them for the honour so well deserved by England's distinguished botanist. The honour, Sir A. Geikie said, would be a valued birthday gift to Sir Joseph, who will celebrate his 90th birthday in the course of a few weeks. Bronze copies of the medal were given to some of the delegates. The representatives of the different countries were received in the same order as at Upsala, and a short statement was made by one member from each country. A dinner followed, and an afternoon tea at the invitation of the Prince Regent on the following day completed the celebrations. No one who witnessed the events will forget them. The weather was remarkably good, and everything was done to make the Linné festivals at Lund, Rashult, Upsala, Hamm, Hammarby, and Stockholm successful.

It may be added that the Linnean Society of London will celebrate the event by a reception and soirée on June 7. The principal exhibits will be of objects associated with or belonging to Linnæus, such as letters, manuscripts, and objects of natural history.

OUR SUPPLEMENTARY ILLUSTRATION represents the beautiful new *Polyantha* Rose Aennchen Müller, as sketched by Mr. WORTHINGTON SMITH from specimens exhibited by Messrs. WM. PAUL & SON, at the meeting of the Royal Horticultural Society, on April 30 last. The variety is of German origin, as is indicated by the name. The flowers are of a rich shade of coral-pink colour, and are produced in clusters in extraordinary profusion. The individual flowers measure about 1 inch in diameter, and the petals are rolled backwards which gives the whole flower a very distinct and pleasing character. The variety continues in bloom almost uninterruptedly from June until late autumn. The plants attain to a height of from 1½ to 2 feet, and in their dwarf habit of growth they are particularly suited for planting in masses or in groups. That the variety is also well adapted for forcing and for pot-culture was evidenced by the handsome plants in pots shown by Messrs. PAUL at the meeting already mentioned.

LINNEAN SOCIETY.—A meeting will be held on Thursday next, June 6, at 8 p.m., when the following papers will be read:—(1) Prof. A. DENDY, F.L.S., and Mr. E. HINDLE, "Contributions to our Knowledge of the New Zealand Holothurians;" (2) Prof. W. A. HASWELL, "Observations on Australasian Polyclads;" (3) Mr. C. TATE REGAN, "Report on the Marine Fishes, collected by Mr. J. Stanley Gardiner in the Indian Ocean;" (4) M. FOSLIE, "The Lithothamnium of the 'Sealark' Expedition;" (5) Prof. L. G. NEUMANN, "Notes sur les Ixodidae recueillis dans les îles de l'Océan Indien, par Mr. J. Stanley Gardiner." Exhibitions:—Mr. G. CLARIDGE DUCE, F.L.S., *Orobanche Ritro*, and some new varieties of plants from the Channel Islands.

FLOWERS IN SEASON.—From Messrs. JAMES VEITCH & SONS, LTD., Royal Exotic Nursery, Chelsea, we have received flowers of the dark form of *Magnolia Soulangeana* and known as *nigra*; a spray of *Exochorda grandiflora*, a handsome, hardy flowering shrub, having racemes of large white flowers; the rose-coloured form of *Clematis montana*, named *rubens*; and *Trochodendron aralioides*, a shrub with leathery, ovate, acuminate leaves on long petioles, and having a curious terminal inflorescence consisting of a raceme of apetalous flowers, with disc-like gynæcium surrounded by an indefinite number of stamens: the whole of a greenish-yellow colour. Messrs. VEITCH also sent a number of named Lilacs, including *Souvenir de L. Spath* (purple), *President Viger* (double lilac), *Emile Lemoine* (soft heliotrope), *President Grey* (lavender-blue), *Mad. Casimir Perier* (white), *Mad. Lemoine* (double white), *Charles Joly* (purple), *Marie Legraye* (white), *Mdlle. Mélide Laurent* (lilac), &c.

Mr. S. WYNDHAM FITZHERBERT sends a spray of *Semele* (*Ruscus*) androgyna from the open in Devon, with numerous small flowers upon the margins of the phylloclades. Our correspondent writes: "There are good specimens at Penjerick and at Rosehill, Falmouth, which occasionally bear fruit. My plant has not as yet fruited. A wall covered with this climber is a beautiful and uncommon sight, the glistening green of the great drooping leaves being very effective and pleasing. Small plants require two or three years to become established, and the younger is the plant the earlier it starts into growth. For the first two years my specimen commenced to grow in November, and by December had shoots 4 feet in height. Now that it has increased in size it does not start into growth until April."

Mr. D. STORRIE, of Messrs. STORRIE & STORRIE, Dundee, obligingly sends us examples of hybrid forms of Cowslips, *Polyanthus* and Primroses in which a great advance is seen, and which promise to be choice acquisitions for the garden. Mr. STORRIE writes: "I hope to exhibit at the Temple Show a small group comprising Cowslips, Cowslip \times *Polyanthus*, Primrose, Primrose \times *Polyanthus*, hybrid *Polyanthus*, *Polyanthus* \times Primrose, and one solitary plant of Cowslip \times Primrose—the first I have met with as a natural cross. In the meantime, I send you by same post three bunches of blooms representing the three main types, and in my exhibit the evolving or intermediate stages will be shown, as well as the devolving stage from *Polyanthus* back to Primrose. It is a notable fact that in the Cowslip \times *Polyanthus* there are no 'whites,' and a white Cowslip is as yet a thing to dream of."

RESEARCH STATION AT WISLEY.—The laboratory and experimental research station in the Royal Horticultural Society's Gardens at Wisley will be formally opened, on July 19 next, by the Right Hon. Lord AVEBURY, P.C., F.R.S., &c.

COVENT GARDEN "EMPTIES."—For some time past there has been an agitation by dealers against payment for boxes and baskets containing fruit and flowers for sale, the receptacles being non-returnable. This practice is the most common in respect to the imports from France. Previously, the crates, baskets, &c., were charged for at the time of sale, but the money was refunded when they were returned empty. The buyers have considered the enforced purchase of the receptacles to be an imposition, especially as the charges for the same were considered

the Apple cases from Australia and Tasmania, or the barrels from America. Some English growers impose a charge for baskets, but in such cases full allowance is made for them when they are returned as empties.

SALE OF THE "CLARE LAWN" ORCHIDS.—The sale of the Orchids that belonged to the late Sir FREDERICK WIGAN took place at Messrs. PROTHEROE & MORRIS' Rooms on May 22, 23, and 24, and was highly successful, the total sum realised amounting to about £4,600. From



FIG. 147.—AN IMPROVED VARIETY OF PRIMULA SIBERICA EXHIBITED BY MESSRS. JAMES VEITCH AND SONS AT THE TEMPLE SHOW.

(It has larger flowers than the type: colour rose-pink.)

to be in excess of their actual cost. They, therefore, decided to refrain from dealing with any broker who charged for the packages, and at a meeting of brokers and others held on the 29th ult. it was decided to abolish the charges. This decision will settle the matter, and save much trouble. It will also put the French produce on the same footing as goods received from other foreign countries. No charges have ever been made for

the sale of the first lot to the last there was keen competition, especially for the best varieties, including the white *Cattleyas* and the remarkable hybrids. The most notable feature in the sale was the increase in the price of good varieties of *Miltonia vexillaria*, three plants of the very fine M. v. "Memoria G. D. Owen" realising 500 guineas, 420 guineas, and 390 guineas respectively. *Miltonia vexillaria alba* fetched

38 guineas, and other good forms sold for proportionately good prices. *Cattleya labiata alba* went for 66 guineas; *C. labiata Cooksoniae* 72 guineas; *C. Mossiae The Queen*, 21 guineas; *C. Mossiae Wageneri*, 28 guineas; *C. Schroderae alba*, 27 guineas; and other white *Cattleyas* fetched good prices. A fine type of *Sophr-Cattleya Doris* realised 40 guineas, and for a smaller plant 13 guineas was paid. "Botanical" and rare species also found favour among purchasers, a good specimen of *Cymbidium Devonianum* selling for 32 guineas, *Megaclinium falcatum* 6½ guineas, *Bulbophyllum virescens* 19 guineas, *B. Ericssonii* 6 guineas, *B. grandiflora*

mission of C. H. RAFTER, Esq., Chief Constable), will perform between 8 o'clock and 6.30 p.m. each day.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

SECRET COMMISSION.—The heavy sentences imposed by Mr. Justice Jelf in the case of the West Ham Guardians who accepted secret commissions from tradesmen, seem to furnish a useful guide to the attitude which it is the

the offers of secret commission made by other firms he found it impossible to secure orders unless he in his turn were equally ready to give such commission. It appears to me that the lessons to be learned from this case are threefold: (1) "Murder will out," and however secret these transactions may be, and however much the servant and tradesman may trust each other not to disclose these illicit transactions, there is always serious danger to be faced by those who may seek to evade the provisions of the Prevention of Corruption Act. (2) Where a conviction is secured the judges are apparently determined to award severe terms of imprisonment. (3) Honesty is, as it has always been, the best policy in the long run. I think the trade should

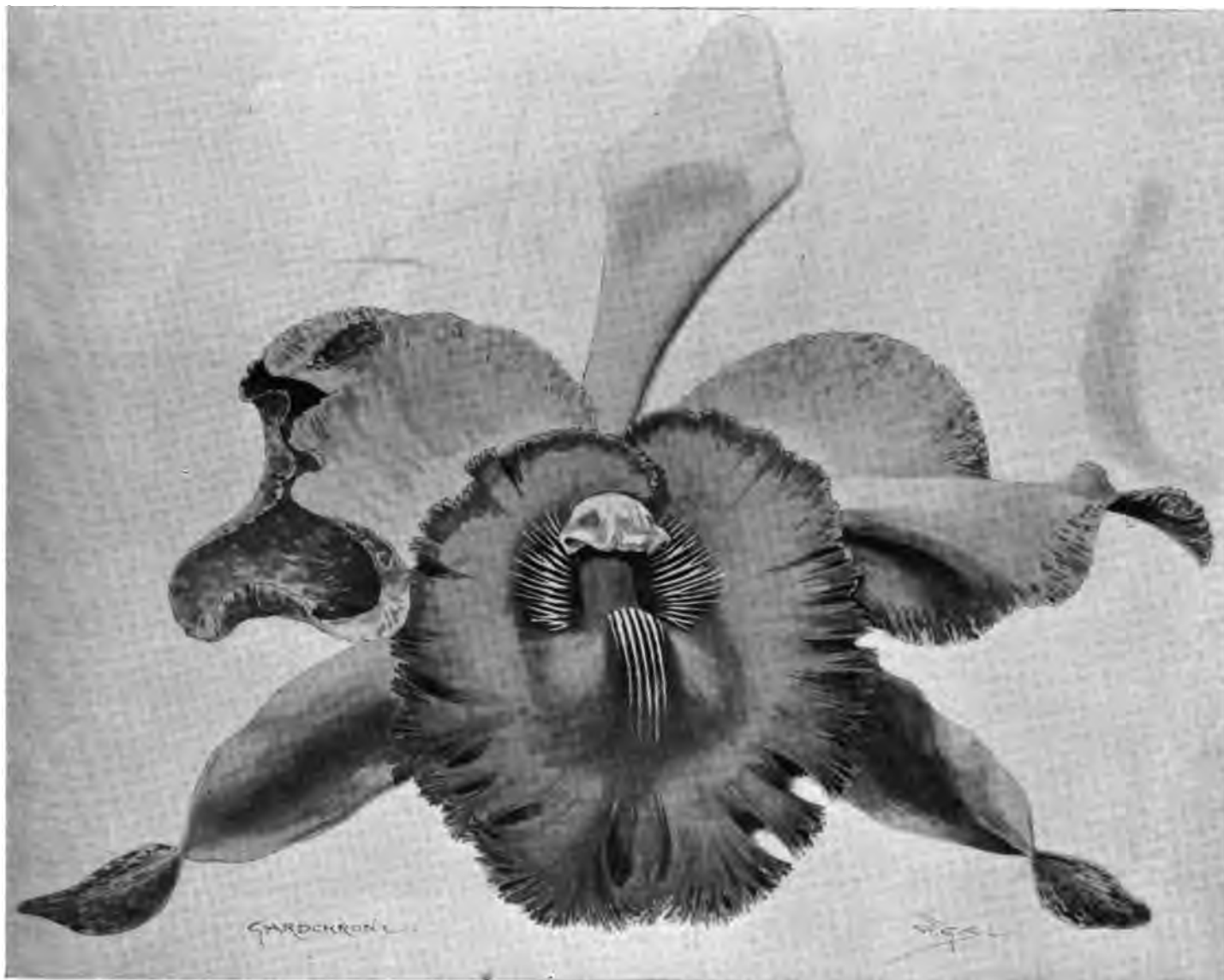


FIG. 148.—BRASSO-CATTELEYA MRS. J. LEEMANN VAR. RAJAH, SKETCHED AT THE TEMPLE SHOW IN MESSRS. SANDER AND SONS' GROUP: COLOUR OF FLOWER YELLOW, WITH SHADING OF ROSE.

£3. *Cypripedium bellatulum album*, of which there were several small plants, sold well, and the rose-blotched *C. bellatulum* "Princess Clementine" went for 44 guineas. The sale was unreserved, and as the collection was very varied, and represented all classes, the results show how valuable the best Orchids really are.

FLOWER SHOWS AT BIRMINGHAM.—The first of the two flower shows already announced for holding in the Botanical Gardens, Edgbaston, will be held on Wednesday, June 12, and the second on Wednesday, July 3. Intending exhibitors are invited to make early application for space so that the necessary arrangements may be made. The exhibition will open at 12.30 and close at 7 p.m. The City of Birmingham Police Band (by kind per-

intention of his Majesty's judges to take in connection with the giving or receiving of secret commissions. It is true that the recent prosecution was instituted under the Public Bodies Corrupt Practices Act, 1899 (in addition to charges of conspiracy to defraud at common law), but this Act and the Prevention of Corruption Act appear to be framed on similar lines; in fact, much of the wording of the latter Act is evidently founded on the phraseology of the former Act. Furthermore, the penalties of fine and imprisonment under both statutes are the same, that is to say, in each case there is liability to imprisonment for a term of two years, or £500 fine, or both. It seems instructive to remember that in the West Ham case the public represented the employer, the guardians represented the servants or agents entrusted with the giving of orders, and the tradesman who gave the commission put forward the excuse that owing to

feel indebted to the Horticultural Trades' Association for the firm stand which they have already taken in dealing with this subject. There can be no doubt that the drastic sentences in the cases mentioned above have already made a deep impression on the minds of traders of all classes throughout the country, and the efforts of the various trade associations in endeavouring to stamp out the practice of giving these commissions are likely to be redoubled. I enclose my name and address. *Anti-Corruption.*

FROST AT WHITSUNTIDE.—A frost on the morning of Whitsunday blackened early Potatoes and Kidney Beans in this district, and I hear that frost also caused much damage to Potatoes in Cornwall on the same date. The old saying that one cannot safely start summer-bedding until after May 20 has proved only too true this season. *J. Mayne, Bickton, Devon.*

Royal Horticultural Society.

THE TEMPLE SHOW.

May 28, 29 and 30.

THE greatest floral event of the year, the Temple Flower Show, took place on the above dates, and another success is to be added to the list of these remarkable exhibitions. Here, in a space of less than an acre, were collected the very finest products of our gardens and nurseries, and, one may say, in the world, for some continental friends send of their best. Although the general plan is each year necessarily similar, some new features were seen, and the exhibits in the open garden formed a not inconsiderable portion of the exhibition. The Orchids were more beautiful than ever, and especially in the direction of hybrids there was a great advance. Roses were, perhaps, not so fine as on some former occasions, and fashion changes in flowers as in other things, which accounts, undoubtedly, for the exhibits of Clematis, Caladiums, and a few other subjects being of less importance than in some of the earlier exhibitions. But advance is seen in other directions, and magnificent were the Carnations, tuberous-rooting Begonias, pillar Roses, Cannas, and many other subjects. The weather on the opening day was dull, and the wind was keen, but, although rain threatened, it fortunately held off. The attendance of the visitors must have been a record, for at times the tents were packed, and one could only move with "the crowd." This is not to be wondered at when one remembers that the society now consists of more than 10,000 Fellows, each of whom is entitled to be present with friends.

The arrangements of the show were perfect, and the secretaries, the superintendent (Mr. S. T. Wright), Mr. Frank Reader, and the other officials are to be congratulated upon the excellent way in which the whole was managed.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the chair), and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, H. J. Chapman, W. Boxall, F. J. Thorne, A. Dye, F. Sander, H. Ballantine, G. F. Moore, W. H. White, J. Colman, W. A. Bilney, W. P. Bound, W. Cobb, F. M. Ogilvie, J. W. Odell, W. Bolton, W. Thompson, H. T. Pitt, C. J. Lucas, H. A. Tracy, W. H. Young, J. Wilson Potter, Francis Wellesley, H. G. Alexander, R. Thwaites, T. W. Bond, E. Ashworth, and F. J. Hanbury.

Major G. L. HOLFORD, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), had an extraordinary group of rare, handsome, and splendidly-grown plants arranged in the most effective manner and occupying 200 square feet, and which justly secured the Veitchian Cup as the highest award made at this show. The different types of flowers were admirably arranged so as to show to the best advantage, each set being made a special feature. Of *Odontoglossum crispum* of the finest type some 50 specimens were used in the group, each bearing fine spikes of 12 to 20 flowers. *O. crispum* Hilda was a fine spotted variety, and *O. c. Osra*, Juno and Egret were handsome forms. The stately *O. Wilckeanum* Rex bore 18 flowers, and one specimen of *O. Pescatorei* had a spike of 70 blooms. Of fine forms of *Miltonia vexillaria* there were 130 spikes, the largest specimen having 18 spikes, with an aggregate of about 100 flowers. Among the best were the richly coloured *M. vexillaria* Empress Augusta Victoria and *M. v. Cobbiana*, the white *M. v. virginale*, the showy *M. v. Westonbirt* variety (see Awards), and *M. v. marmorata*. Of hybrids and allies there were *M. Bleuana nobilior* and *M. Roezlii album*. The fine forms of *Cattleya Mossiae* provided nearly 150 blooms, and included the white varie-

ties *Reineckiana* Westonbirt variety, *Reineckiana superba*, and *Wagneri*. The forms of *Lælia purpurata* also were much in evidence, their large rose or white petalled flowers, with rich crimson or purple labellums, being very effective. Remarkable for the bright veining on the petals were the varieties *Fastuosa*, *Annie Louise*, and *Backhousiana*, and for the clear white of its petals the variety *alba*. Westonbirt is famous for its hybrid Orchids, and the display in the group was well worthy of it. One of the most beautiful and charming in colour was *Lælia-Cattleya Golden Glory* [see fig. 151], with a wealth of light crimson-lipped golden-yellow flowers. L.-C. Canhamiana Rex represented the largest dark variety, the variety "Lady Wigan" being the prettiest light form; the new Westonbirt seedling L.-C. Ganymede well displayed its peculiar colours, and good L.-C. Fascinator and other fine forms were noted. Of hybrid *Cattleyas* one of the most attractive was the clear white *C. Dusseldorfei* var. *Undine*, for which Major Holford had already received a First-class Certificate. *C. Empress Frederick* and other

p. 322; the handsome *O. crispum xanthotes*, White's variety, these two being the only plants out of the fine collection which Messrs. Sander entered to go before the Orchid Committee, and both secured First-class Certificates. Among the other *Odontoglossums* the best appeared to be *O. crispum Sanderæ*, of a peculiar red colour, with white margin and intersecting lines; *O. crispum "Beauty"*, a blending of the blotched and the punctatissimum class; *O. crispum "Prince of the Asturias"* (see fig. 150), and *O. crispum "Lord Cromer"* (see fig. 149), two very handsome and finely blotched forms obtained by crossing a good blotched variety with *O. crispum Graireanum*, the orange-tinted purple of the latter showing in the progeny. Of hybrids *O. ardentissimum "The Earl"* had grand flowers blotched with purple; *O. ardentissimum Kalistonia* was a distinct and good form; *O. Prince Albert*, a new type of hybrid with reddish flowers, the tips and margins only being white; *O. Fascinator*, broad and heavily blotched with dark purple; *O. mirum magnificum*, a great advance in its class; *O. crispum-Harryanum*



FIG. 149.—ODONTOGLOSSUM CRISPUM "LORD CROMER," FROM MESSRS. F. SANDER AND SONS' EXHIBIT.

fine hybrids and species were also represented in splendid condition, and among the *Brasso-Cattleyas* were B.-C. Digbyano-Schröderæ, Westonbirt variety, a grand blush-white flower with large fringed labellum, and various other *Brasso-Cattleyas* and *Brasso-Lælias*, including the new, bronzy-tinted B.-L. Gipsy. Of *Cypripediums* noted were a fine specimen of *C. Lawrenceanum* and its albino *Hyeaenum*, *C. Maudiae magnificum*, *C. callosum Sanderæ*, good *C. niveum*, &c. Other fine effects were made by the arching sprays of large white flowers on *Phalænopsis Rimestadtiana*, the rose tints of *Vanda teres*, the scarlet of *Epidendrum radicans*, and the graceful sprays of *Thunia Marshalliana*, *T. Veitchiana*, *Dendrobium Dalhousianum luteum*, &c.

Messrs. SANDER & SONS, St. Albans, had a magnificent group, specially rich in fine *Odontoglossums*, among which were the unique *O. crispum "Solum"*, a marvellous white variety with the whole labellum of a rich, dark ruby-crimson colour, and which was well illustrated in the *Gardeners' Chronicle* for May 27, 1905,

Brugense, large and finely marked; and *G. Pescatorei "Princess"*, a clear white variety of fine shape; *O. Wilckeanum* Miss Louisa Fowler bore two spikes of noble primrose-yellow coloured flowers of great size and finely blotched with chestnut-brown; *O. splendidissimum* (*Pescatorei* × *ardentissimum*) was very handsome. Two plants of the rare *Odontonia Lairesseæ*, with branched spikes of rose-coloured and white flowers, were noted; also among the hybrids of *Brassavola Digbyana* the very beautiful *Brasso-Cattleya* Mrs. J. Leemann, variety "Rajah" (see fig. 148), obtained by using Messrs. Sander's *C. aurea chrysotoxa*, was very handsome. The flower is of bright yellow in the centre, shading to chrome-yellow, the fringe of the lip and sides of the petals being exquisitely flecked with light rose. Among the *Cattleyas*, of which there were many choice white forms, was a noble mass of *C. Mossiae*, with over 100 flowers of fine quality; some splendid forms of *C. Mendellii*; a very fine series of *Lælio-Cattleyas*, L.-C. Canhamiana Rex, which was shown in several good examples,

being very showy, and *L.-C. Canhamiana alba*. *Miltonia vexillaria* included the finely coloured *M. v. Empress Augusta Victoria*, the scarlet *Renanthera Imschootiana*, and many rare species were shown, including a noble plant of *Bulbophyllum Ericsoni*, with its large and quaint umbel of greenish-yellow flowers blotched with purple, and arranged like the cup of a Chinese pagoda.

Messrs. WILLIAM BULL & SONS, King's Road, Chelsea, had the next group, which was made up principally of *Odontoglossums*, *Cattleyas*, and *Lælias*. Among the *Odontoglossums* *O. crispum* Florence and *O. c. Doris* were of the blotched class; *O. ardentissimum* Sunset, *O. periclitum*, *O. amabile*, and *O. excellens* were good hybrids. *Cattleya Mendelii* Countess and Princess of Wales were fine white-petalled varieties; *C. Mossiæ* Princess of Wales, *Lælia purpurata* Prince of Wales, *L. p. illustris*, and *L. p. The Queen*, excellent varieties.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, completed this side of the stage with an extensive group, in which the forms of *Cattleya Mossiæ* were good throughout, and included several white varieties, the *C. Mossiæ alba* being purest; *C. M. Leonora* had a clear orange disc. *C. M. Mrs. C. H. Feiling*, which had previously secured an Award, is a richly coloured form, and the varieties of *C. Mendelii* of Messrs. Low's importation showed the strain to the best advantage. At one end was a batch of interesting species comprising *Physosiphon Loddigesii*, *Epidendrum atropurpureum*, *E. aurantiacum*, *Cirrhopetalum picturatum*, *Oncidium cucullatum*, *Sophranitis grandiflora*, *Odontoglossum blandum*, &c. Two specially fine plants in the group were comprised in a dark coloured *Lælio-Cattleya Dominiana* and the white-petalled *Lælia purpurata bella*.

On the other side of the table JEREMIAH COLMAN, Esq., Gatton Park, Reigate (gr. Mr. W. P. Bound), had a very fine group excellently well arranged, the end being well filled by a number of plants of the fine orange-coloured *Epidendrum Boundii* and the new red *Epidendrum Gatton Glory*, excellent "decorative" plants. In the main group was a selection of splendidly grown *Odontoglossums*, the pretty blotched *O. crispum* "Mary Colman," with three finely developed spikes, obtaining for Mr. Bound a Cultural Commendation; and the handsomely spotted *O. crispum* Richard Causton. The centre was of white *Cattleyas*, and at the back were fine plants of *Cymbidium Lowianum*, with one fine form of *C. L. concolor*, and a good specimen of *C. Lowio-eburneum*, "Gatton Park variety." On each side were batches of *Lælio-Cattleyas*, *Cattleya Mendelii*, and *C. Mossiæ*, among the latter being the very distinct variety "Jeremiah Colman," which secured an Award of Merit last year. The scarlet *Renanthera Imschootiana*, *Spathoglottis aurea*, "Gatton Park variety," patches of *Cypripedium niveum* and *C. concolor*, *C. Lawrenceanum* Hyeannum, *Bulbophyllum Lobbi* and its variety colossus, and many other handsome species and varieties, were also arranged in the group.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, came next with a magnificent group too full of extraordinary plants to admit of reference to a tithe of those deserving notice. The *Odontoglossums* were magnificent, and Messrs. Charlesworth's home-raised, blotched *crispums* yield their first fruits in five splendid varieties, perhaps the best of which is *O. crispum* *heatonense*, a grandly blotched flower of fine shape, the greater part of its surface blotched with reddish-purple, with only a few intersecting white lines and a white margin. Another fine hybrid was *O. Phoebe magnificum* (*cirrosom* x *crispum* *Luciana* [see fig. 151], a great improvement on the original and a charming flower of novel colour. The ground colour is white, with a slight rose shade and the spotting of a dark reddish-purple colour, the crest of the lip being yellow. In the group were many white *Cattleyas*, a fine lot of *Lælio-Cattleya Fascinator* and other *Lælio-Cattleyas*, some rare *Cypripediums*, including the unique *C. bellatulum* Princess Clementine, large, cream-white, with soft rose-pink spotting; *Brasso-Cattleya Queen Alexandra*, a good white variety; *Cattleya Mendelii* Queen of Spain, *C. M. Princess Thyra*, a pure white with magenta lip; and *C. M. Fushimi*, a remarkable form. *Lælio-Cattleya Canhamiana* "Marguerite" is a

white form with marbling of rose on the petals and lip; the pretty scarlet *Odontioda Vuylstekeæ*, and a showy selection of other hybrids. The selection of *Miltonia vexillaria* were excellent, and among them was a very pure white variety.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. Day), staged a pretty group, made up of showy *Cattleyas*, including a fine *C. Schöderæ* *alba* and some exceptionally good *C. Mendelii* and white *C. Mossiæ*, a grandly flowered *Renanthera Imschootiana* with two spikes, a selection of *Odontoglossums*, including a few blotched *O. crispum*, good *Miltonia vexillaria*, *M. Phalaenopsis*, &c., the front row being of scarlet *Masdevallias* and Maidenhair Ferns.

Messrs. CYPHER & SONS, Cheltenham, continued with an elegant group, in which the principal feature was made by numerous specimens of splendidly grown *Miltonia vexillaria*, varying from the large, bright rose-coloured type to the white-lipped class of the *M. vexillaria leucoglossa* section and the wholly white *M. vexillaria alba*. Among the best were *M. v. Cobbiana*, *M. v. virginale*, *M. v. gigantea*, and *M. v. Empress Augusta Victoria*. At the back was a very fine set of *Lælia purpurata* of the very best type. There were also *Dendrobium Wardianum* album, *D. Dalhousianum* luteum, a good *Cypripedium* "Miss Louisa Fowler," a very pretty and distinct cross between *C. Chamberlainianum* and *C. Godefroyæ*, and a singular form of the latter with the spotting of *C. bellatulum*.

In the long tent, Messrs. LINDEN, Brussels, showed a selection of varieties of *Odontoglossum*



FIG. 150.—*ODONTOGLOSSUM CRISPUM* "PRINCE OF ASTURIAS," EXHIBITED BY MESSRS. F. SANDER AND SONS, AT THE TEMPLE SHOW.

crispum, including one plant of their new, heavily-blotched seedling *O. crispum* "Reine d'Angleterre," well worthy to rank with the very best of the seedling forms by reason of its rich claret-red blotching. Messrs. LINDEN also showed good *Cochlidoda Noezliana*, and a yellow form of this species.

J. RUTHERFORD, Esq., Beardwood, Burnley (gr. Mr. Lupton), showed a selection of white *Cattleyas*, including *C. Mossiæ* *Rappartiana* and *C. M. Reineckiana*.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent *Cattleya Mossiæ* Miss Mary Knollys, a large pure-white flower of fine substance, the crimped and broad labellum having crimson-purple markings in front of the orange-coloured disc, behind which run some purple lines to the base.

Mr. JOHN ROBSON, Altrincham, staged a small group, in which were some very fine *Odontoglossums*, for the best of which see Awards. The best of the others were the finely blotched *O. crispum* "Karthausii," *O. c. "Empress Frederick"*, *O. c. "Dora"*, *O. c. Moortebeekense*, *O. c. "Madouxianum"*, and *O. "Lambeaunum"*.

M. CHAS. VUYLSTEKE, Loochristi, Ghent, showed *Odontoglossum crispum* "Fabiola," a showily-blotched seedling form, and three others (see Awards).

Mr. R. ROBINSON, Roath Park, Cardiff, sent an inflorescence of a singular, constant abnormal form of *Dendrobium thyrsiflorum* near to *D. t. Gallicanum*.

R. ASHWORTH, Esq., Newchurch, Manchester (gr. Mr. Pidsley), staged a small selection of spotted forms of *Odontoglossum crispum*, &c.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, arranged a very bright and effective group of finely grown plants, comprising a selection of *Odontoglossums*, *Cattleya Mossiæ*, *Lælia purpurata*, &c. High up at the back were graceful sprays of *Cymbidium Lowianum* and two *Cœlogyne Dayana*, with drooping racemes of whitish flowers marked with sepia-brown. At one end was a fine spike of *Cœlogyne pandurata*, and near it a group of *Cypripedium niveum* and others of the class. *C. niveum* "The Duke" was a very fine flower; *C. Godefroyæ leucochilum* and *C. bellatulum*, extra good; *C. callosum* *Sanderæ*, *C. Maudiae*, a very fine *Odontoglossum ardentissimum*, *O. amabile*, &c., all grown to perfection, and the group was brightened with scarlet and purple *Masdevallias*.

Mrs. STONYFORTH, Kirk Hammerton Hall, Yorkshire, showed an enormous specimen of *Dendrobium thyrsiflorum*, literally covered with fine heads of bloom, and for which a Cultural Commendation and Silver Banksian Medal were given.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, showed *Cattleya Mossiæ* *Rosalind*, having three very large white flowers, with a slight blush on their broad crimped-edged labellums; also two plants of their new and fine *Brasso-Catt.-Lælia Veitchii*.

H. L. BISCHOFFSHEIM, Esq., Warren House, Stanmore (gr. Mr. Doig), staged a very effective group of excellent varieties of *Cattleya Mossiæ*, *C. Mendelii*, *Lælia purpurata*, &c., together with *Cypripedium bellatulum*, *Brasso-Cattleya Digbyano-Mossiæ*, *Odontoglossum citrosimum* album, &c.

AWARDS.

FIRST-CLASS CERTIFICATE.

Lælio-Cattleya Golden Glory (*L.-C. Zephyra* x *Mossiæ Reineckiana*), from Major G. L. HOLFORD, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander). A very fine hybrid, with bright golden yellow flowers, with the front of the lips rose-crimson (see fig. 152).

Miltonia vexillaria, *Westonbirt variety*, from Major G. L. HOLFORD. A grand form and a very near approach to the famous *M. v. Memoria* *G. D. Owen*, its large rose-tinted flowers having the same rich vinous purple mask at the base of the lip; the colour, however, is rather lighter and shows more crimson than in the form mentioned.

Odontoglossum crispum Solum, from Messrs. SANDER & SONS, St. Albans. This remarkable form stands alone, as its name implies, there being no other with the remarkable, almost wholly dark ruby-purple lip. The sepals and petals are white, with an occasional blotch of the same colour as the lip.

Odontoglossum crispum xanthotæ, *White's variety*, from Messrs. SANDER & SONS. Florally the best of its class, it has the broad segments of the best type of *O. crispum*. Flowers, white, with orange crest to the lip, and some orange-coloured spotting on the sepals and petals.

Cypripedium tibeticum, from Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea. The very handsome, hardy species introduced by Messrs. JAS. VEITCH & SONS through their collector, Mr. E. H. WILSON, and which was well illustrated in the *Gardeners' Chronicle*, June 2, 1906, p. 347. Flowers large, the sepals and petals tessellated with dark purple, the globose labellum chocolate-purple.

Odontoglossum ardentissimum Robsonæ, from Mr. JOHN ROBSON, Altrincham, Cheshire. A grand novelty and a great advance on other forms in size, substance, and colour, and worthy to rank with all first-class *Odontoglossums*. The greater part of the segments were of a bright crimson-purple; the margin and tips white.

Odontoglossum gandavense (*ardentissimum* x *Vuylstekeæ*), from Monsieur CHARLES VUYLSTEKE, Loochristi, Ghent. A fine hybrid of exquisite shape, the greater part of the segments of a peculiar rose-purple colour, the margin of the flower white.

Odontoglossum eximium King of England, from Monsieur CHARLES VUYLSTEKE. Flowers claret colour, with white margin and tips to the segments.

Odontoglossum caruleum (parentage unrecorded), from Monsieur CHARLES VUYLSTEKE. A new colour in *Odontoglossums*, the greater part of the flower being violet colour, with a white ground.

AWARD OF MERIT.

Cattleya Mossia Princess of Wales, from Major G. L. HOLFORD, C.I.E., C.V.O. (gr. Mr. H. G. Alexander). A magnificent form of typical *C. Mossia*, with large rose-coloured sepals, petals, and broad ruby-purple lip having an orange-coloured disc and bluish-white margin.

Odontoglossum Thompsonianum superbum (Edwardii \times crispum), from W. THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens). Flowers claret colour, with pale lilac margin and tips.

Brasso-Lalio-Cattleya Lido (B. Digbyana \times L.-C. Henry Greenwood), from Monsieur CHAS. MARON, Brunoy, France. Flowers large and of good shape, rosy-lilac, with a deep fringe to the very broad labellum.

MISCELLANEOUS PLANTS.

GROUPS.

Messrs. SUTTON & SONS, Reading, filled the whole end of the large tent with varieties of florists' flowers. The group was broken by a central oval bay, composed of the stellata or star type of *Cineraria*, and on either side were banks of Herbaceous Calceolarias, tuberous-rooting Begonias, and Gloxinias, finishing at either end with heavily-flowered plants of *Schizanthus Wisetonensis*. The group also found space for hybrid Tobaccos (*Nicotiana*) in a variety of colours, *Nemesia strumosa*, *Streptocarpus*, and other greenhouse subjects. The whole was staged in the best possible manner, with a few foils of Palms, *Grevillea robusta*, ornamental grasses, &c., and it was edged with a grass verge, *Caladium argyrites*, and *Ficus repens*.

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, showed greenhouse flowers, including *Gerbera Jamesoni*, *Ericas* in variety, *Boronia polygalifolia*, tiny plants of *Azalea rosæflora*, very freely flowered, the colour being pink; *Pimelia*, *Hendersoni*, *Meterosideros floribunda* Ferns, Roses, &c.

Messrs. H. CANNELL & SONS, Swanley, showed large-flowered Calceolarias of the herbaceous type, hybrid *Streptocarpus*, a desirable strain of *Gloxinias*, exquisite small pot plants of *Phyllocactus phyllanthoides* var. *German Empress*, with pink flowers, a batch of the very finest varieties of Cannas, including the following new kinds: Hermann Aldinger, a very big crimson-coloured flower; Gaekwar of Baroda, bright scarlet spots on a yellow ground, a very choice flower; Frau E. Kracht (salmon). *Mephisto* is not new, but it is the darkest of all the race, being deep crimson. As a background to this very pretty exhibit was a row of heavily-flowered pillar Roses.

Messrs. JAMES CARTER & CO., High Holborn, displayed a very fine group of greenhouse flowering plants, staged in a very pleasing manner. They had excellent *Cinerarias* of the stellata or "star" type, a fine batch of *Gloxinias*, a double-flowering variety of *Lobelia compacta*, a choice strain of *Petunias*, tuberous-rooting Begonias, also Carnations, *Primula obconica*, *Schizanthus*, and a well-furnished rockery.

Messrs. JOHN PEED & SON, West Norwood, London, S.E., displayed a very large number of *Gloxinias*, all excellently flowered and exhibiting the very best cultural skill. The plants were almost all named varieties. Countess of Ilchester is one of the very best exhibited, a profuse bloomer and good grower; the colour is mauve or heliotrope, and the throat white. Countess of Carnarvon is very similar to the foregoing, save that the colour is rose. *Empress of India* is a purple flower of very large size; *Purity*, white; and *Queen Maud*, a new spotted variety.

Mr. W. ICETON, Putney, showed a batch of *Lily-of-the-Valley* in a setting of *Astilbe* (*Spiræa*), *Saxifraga cotyledon*, *Ericas*, and yellow *Azaleas*. The *Lily-of-the-Valley* was exceptionally fine. Mr. ICETON also furnished the top end of the centre tent with similar plants.

Messrs. JAMES VEITCH & SONS, Royal Exotic Nursery, Chelsea, exhibited a large group of ornamental foliage plants of stove and greenhouse subjects, interspersed with a few *Cattleyas*, *Anthuriums*, &c. *Anthurium crystallinum*

was represented by a magnificent specimen; there were also many handsome *Caladiums*, with foliage large and splendid in colour; tall *Codiaeums* (*Crotons*), choice Ferns, including the new *Nephrolepis exaltata* var. *todeoides*; *Davallia tenuifolia* var. *Veitchiana*; *Medinilla magnifica*, in flower; large plants of *Nepenthes Mastersiana* and *N. sanguinea*, on tall pedestals; and a host of other beautiful subjects.

As a separate group in the same tent, Messrs. VEITCH exhibited many new and rare plants. *Magnolia parviflora* has a brilliant setting of red stamens in a pure-white perianth. Large standard plants of *Rhododendron* "Pink Pearl" were a feature; *Vitis megalophylla*, *V. Thomsoni*, and *Actinidia chinensis* are good climbing plants; and *Lonicera tragophylla* is another plant of this type of recent introduction; the flowers of the last-mentioned are yellow. The group also contained large-flowering *Clematis*, an assortment of *Azaleas*, *Eremurus*, *Primulas*, *Viburnum rhytidophyllum*, figured in *Gardeners' Chronicle*, June 30, 1906, p. 418, &c., &c.

Messrs. JAMES VEITCH also displayed an assortment of greenhouse flowering plants. Hybrid *Streptocarpus*, with flowers a shade of carmine-crimson, were noticed; also a handsome batch of *Phyllocactus*, some pretty hybrid *Gerberas*, *Kalanchoe Kewensis*, *Cinerarias*, *Blandfordia nobilis*, a rose-coloured form of *Lobelia tenuior*, and a host of other fine things.

Messrs. SANDER & SONS, St. Albans, gave prominence to a very large plant of *Encephalartos* in a group of choice stove foliage plants. *Dracæna Broomfieldii* superba has beautiful white striations and a similar margin, the centre being pale green. *Anthurium Scherzerianum*, *Phoenix Roebelinii*, *Bougainvillea Sanderiana* variegata, *Dracæna Godeffiana*, *Polypodium Knightiae*, *Pandanus pacificus*, and *Furcraea Watsoni* are other rare and beautiful plants exhibited in this group.

Messrs. WILLIAM BULL & SONS, King's Road, Chelsea, displayed a group of ornamental-leaved exotic plants. Some very fine specimens of *Dracæna Victoria* were prominent, notably a handsome plant in the centre of the group; also *Caladiums*, *Alocasias*, *Codiaeums* (*Crotons*), *Aralia Chabrieri*, tree Ferns, *Phyllotænium Lindeni*, *Bertolonias*, *Nepenthes*, Palms, &c.

The HORTICULTURAL COLLEGE, Swanley, showed well-grown plants of *Schizanthus Wisetonensis*, with flowers of a pleasing rose colour. Intermingled in the group were herbaceous Calceolarias and Ferns.

Messrs. HEATH & SON, Cheltenham, displayed handsome varieties of *Regal* and *Show Pelargoniums*, together with plants of *Streptosolen Jamesoni*, very profusely flowered.

THE CRAVEN NURSERY CO., Clapham, Lancaster, showed pots plants of *Schizanthus Wisetonensis*.

WILLIAM R. CHAPLIN, Joynings Nursery, Waltham Cross, had small plants of a well-selected strain of garden *Petunias*.

WICKHAM NOAKES, Esq., Croydon (gr. Mr. W. Howarth), exhibited large plants of Herbaceous Calceolarias in pots.

Mr. T. A. HAMMERSTON, Epping, Essex, displayed a new double-flowered Zonal *Pelargonium*; name, *Pride of Essex*. The colour of the flowers is pink.

Clematis.—Messrs. RICHARD SMITH & CO., Worcester, displayed a very large group of large-flowering *Clematis*. The plants were balloon-trained, taller specimens being at the back, and smaller plants with Ferns, *Anthuriums*, *Saxifraga cotyledon*, tiny Maples, and other subjects in the foreground. Among the more notable of the *Clematis* were *C. purpurea elegans* (lavender), *Gloire de St. Julien* (a large flower of fine form, with the palest suffusion of pink-white), *Venus vitreæ* (a double form), *Nellie Moser*, *Mlle. Edouard Andre* (vinous red), *purpurea elegans*, *King Edward VII.*, and many others.

Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, exhibited well-trained plants of showy *Clematis* in all the more notable and finer varieties. At the back overhung pillar plants of *Wistaria sinensis* and tall Palms, and at the front a bright edging of *Eurya latifolia*, and the red-flowered *Boronia heterophylla* var. *Albert Victor*.

Rhododendrons and Azaleas.—Messrs. JOHN WATERER & SONS, LTD., Bagshot, Surrey, staged a group of *Rhododendrons* in the

form of a bank; perhaps a little too crowded for the best effect, but remarkable for the quality and variety of colouring and general culture. A conspicuous place was given to the beautiful *Pink Pearl* variety, among which was seen a great difference in the degree of colouring, some being very pale—almost white; *Strategist* (rose-pink), *Duke of Connaught* (red, with a pale interior), *Duchess of Connaught* (white, with yellow spots on the upper petal), *John Waterer* (one of the handsomest of the red-flowered kinds), *Mrs. William Agnew* (a delicate pink, with deeper-coloured margins), *Baroness Henry Schroder* (white, with purple spotting), *Minnie*, *concessum*, &c.

Messrs. R. & G. CUTHBERT, The Nurseries, Southgate, Middlesex, staged a charming group of *Azaleas* of the mollis, *altaclerensis*, and *Ghent* types. The group presented a sheet of colour, the plants being covered in their delicate-tinted flowers in yellow, pink, red, salmon, white, and other shades. *Pallas* (orange) and *Fanny* (pink) are two beautiful varieties of *A. indica*, and most profuse in their flowering. *Mrs. A. E. Endty* (yellow), *Dr. Reichenbach*, *Mme. Anthony Koster* (new), and *Alphonse Lavallee* are but a few of the varieties represented in this pleasing exhibit.

Mr. CHAS. TURNER, Royal Nurseries, Slough, staged two dozen pyramidal-trained plants of *Azalea indica* in a setting of showy Maples and Ferns. The plants were covered to their bases with flowers, and included such handsome varieties as *Roi de Hollande* (a remarkably profuse bloomer), *grandis*, *Perle de Deleberg* (white), *Rosa Bonheur* (double), *Helene Thelemann* (pink), *Mme. Van Houtte* (pink, with a white edging), *Mrs. Turner*, *Hexe*, &c.

Messrs. WM. PAUL & SON, Waltham Cross, Herts, exhibited trusses of many beautiful varieties of hardy *Rhododendrons*.

Messrs. W. H. ROGERS & SONS, Southampton, showed varieties of *Rhododendrons* and *Azaleas*.

Caladiums.—Messrs. JOHN PEED & SONS, West Norwood, London, S.E., exhibited showy *Caladiums*, all beautifully coloured. The gradations of colour ranged from the palest green through darker shades to deep crimson, some of the varieties being maculated with deeper spottings, and others having pronounced veining in crimson, green, pink, and other shades set in a paler lamina. A selection of the varieties shown includes *Sir Henry Irving*, *John Peed*, *Edith Luther* (new rose), *Marquis of Camden*, *Mr. John Box*, *Mrs. Iceton* (new, pale green), *Silver Queen* (the very palest green), *Triomphe de Comte* (a remarkably fine flower, handsomely coloured), *May Archer* (new), &c.

Messrs. JOHN LAING & SONS, Forest Hill, West Norwood, displayed choice varieties of *Caladiums*, making a very good display with these showy-leaved subjects. Among the finer kinds in the group were *Triomphe de Comte*, red, with green markings; *Mme. Imbert Kachlin*, greenish-yellow; *Rose Laing*, a beautiful kind, with rose veins on a greenish-yellow-coloured ground; *George Berger*, a splendid leaf; *Excellent*, red in the centre of the lamina, and edged with green spotted with silver; *Gerard Dow*, red, &c.

Hippeastrums.—Major G. L. HOLFORD, Westonbirt, Tetbury, Gloucestershire (gr. Mr. A. Chapman), showed a selection of his fine strain of *Hippeastrums* (*Amaryllis*). The plants were staged sufficiently apart to display their beauty, and suitable foils, such as Ferns, Palms, &c., were included in the exhibit. A selection of the varieties, most of which have been already described in our pages, embraces *Isis* (almost pure white), *Homer* (red), *Juno* (white ground, streaked with red), *Firelight* (scarlet), *Miltiades* (crimson), *Rob Roy*, *Hamlet*, &c.

Messrs. R. P. KER & SONS, Grassendale, Liverpool, also exhibited *Hippeastrums*, the group adjoining that last mentioned. The plants were sturdier and dwarfer than those in the former exhibit, but they were none the less beautiful, although, perhaps, a little too crowded. A variety named *Dreadnought* is of remarkable size: it measured little less than a foot across, but the colour is not of the best, being a weak shade of red. *Pink Pearl* is a fine flower, aptly named; *Sylvia* is almost pure white, and *alba perfecta* is quite an albino. *Lord Chancellor*, *Black Prince* (crimson), and *Neptune* are other excellent varieties seen in this exhibit.

CARNATIONS.

All the exhibitors staged very fine blooms. The Guernsey growers appear to obtain better colour in their flowers than home growers; this is especially seen in such varieties as Enchantress and others of blush and pink shades.

Mr. H. BURNETT, Guernsey, staged a fine group, the variety Mrs. H. Burnett being of the best quality, also the new Marmion (see Awards) and Mikado (a shade of heliotrope). The American varieties, especially R. Craig, were good, and there were also several seedlings of promise.

Messrs. BELL & SHELDON, Guernsey, exhibited flowers of the American type. Helen Goddard (rose pink, a fine variety), President, Lady Boun-

Messrs. JAS. VEITCH & SONS, LTD., Chelsea, made an extensive exhibit, chiefly of the American type: the Pink Mrs. Patten is a most promising variety. The leading sorts of winter-flowering Carnations were well shown in this display.

Mr. C. TURNER, Slough, put up a good group of pot plants representing American, Souvenir de la Malmaison, and other varieties.

Messrs. CUTBUSH & SONS, Highgate, were extensive exhibitors, all classes being well shown in pot plants. The variety King Arthur was remarkably fine, as were also their examples of Souvenir de la Malmaison.

Mr. C. F. WATERS, Balcombe, Sussex, ex-

hibited the leading American sorts in well-developed blooms; Jessica, R. Craig, White Perfection, and others were very fine.

Mr. A. F. DUTTON, Iwer, Bucks, exhibited in his usual good form his improved White Lawson and other leading American sorts, all exhibiting very best culture.

Mr. ENGELMANN, Saffron Walden, was another good exhibitor of the American sorts. Fiancée has been condemned by some growers, but as seen here it was very fine. The variety Mrs. W. T. Omwake was also good. Several seedlings were shown by Mr. ENGELMANN.

The Duke of PORTLAND, Welbeck Abbey (gr. Mr. J. Gibson), put up a fine group of pot plants, chiefly of Souvenir de la Malmaison varieties, of which Princess May was prominent.

Sir S. SCOTT, Brackley (gr. Mr. Tupper), staged good plants of Cecilia, Lady Hermione, and others.

THE ROSES.

The large marquee was better filled with Roses, shown as plants, than on any previous occasion. One of the largest and most varied groups was that shown by Messrs. W. PAUL & SON, of Waltham Cross Nurseries. The main idea in the arrangement of this exhibit was that of a sloping bank of bush Roses, and these were excellent for the size and fine condition of the individual flowers and abundance of healthy foliage; dotted among them at wide distances were standard Roses, and columns of such climbing varieties as Lady Gay, Kathleen, Hiawatha, &c., and the group had a backing of the same varieties. The new hybrid Tea Madame Melanie Soupert had an immense bloom of a light flesh tint, a filbert-shaped central mass of petals, and very large, circular guard petals. Dr. William Gordon is a large—sometimes very large—Rose of a bright pink tint, of good form, and very full in the centre.

Mr. CHAS. TURNER, Royal Nurseries, Slough, showed dwarf and climbing Roses extensively, Crimson Rambler, Lady Gay, &c., being dotted about among the former as "starers." Standards of Souvenir de Pierre Notting, Maman Cochet, &c., were employed in a similar way. The effect was pleasing.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, made with a corner group a great show of Rambler and Polyantha varieties, and of Hybrid Teas as standards, arranged among the dwarf Roses shown in pots. Of newer varieties there were observed Souvenir de Rosieriste R. Vilin, a massive white, of pleasing form, solid and full. Cherryripe pleased us by reason of its bright crimson tint that is marred by a conspicuous eye; Sénateur St. Romme possesses a solid form, and a flesh tint; Dean Hole is a nice bright pink Rose, with the shape of Niphetos; Grand Duchess Alexandra is a fine, light flesh-coloured flower; Nellie Johnstone has a filbert-shaped bloom of moderate size and of light rose tint. The bloom, when in the half-open state, is a charming one.

The corner group facing the last was set up by Messrs. W. CUTBUSH & SON, of Highgate and Barnet. In this exhibit the Roses were in combination with "Malmaison" Carnations. Climbing and Polyantha Roses were finely bloomed, and these formed the background of the group.

Messrs. B. R. CANT & SONS, The Old Rose Gardens, Colchester, exhibited Roses, arranged in the form of a bank on a table, the back rows consisting of Ramblers Lady Gay, Mrs. T. W. Knight, Evangeline, Babette, Nance Christy, Crimson Rambler, Minnehaha, a pretty double-flowered, pink variety; Dorothy Perkins, and others. The middle foreground was filled with various climbing Roses, and species having single flowers, as Atropurpurea, Altaica, Leuchstern, and Killarney; and the front was furnished with boxes of cut bloom. Among these very fine blooms of the best show varieties were conspicuous, Teas and Hybrid Teas being in the majority.

Messrs. F. CANT & Co., Braiswick Nurseries, Colchester, made an imposing show of Rambler and Polyantha Roses in great variety, such bright-looking Roses as Hiawatha being made much use of for the forming of arches and pillars. Trier is a semi-double white flower, with yellow anthers; Gruss an Zabern is more double, and not unlike Felicité et Perpetué; Eugénie Lamesch is a semi-double Polyantha variety, pale lemon coloured; Philadelphia Rambler has a very bright crimson tinted, and

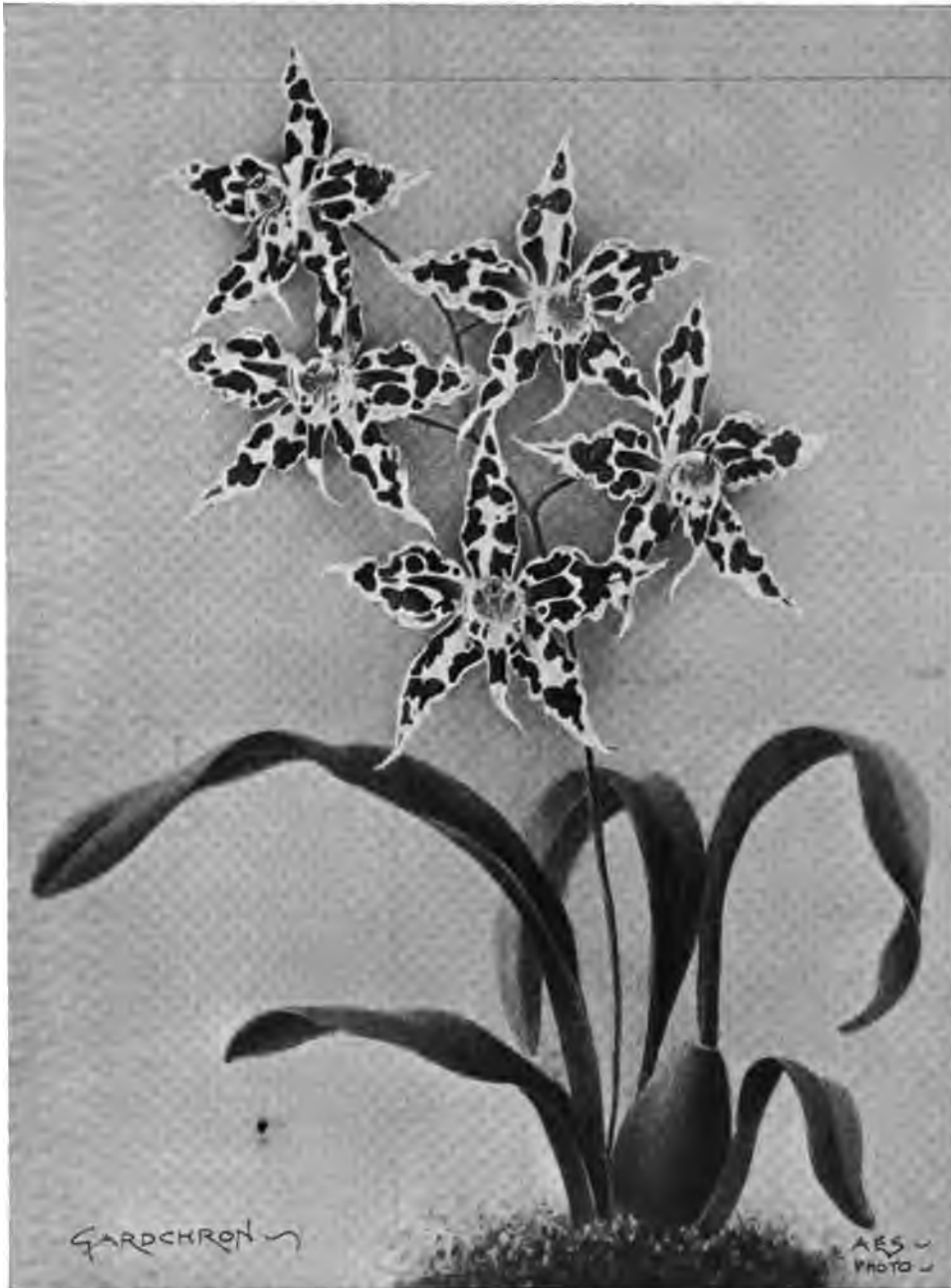


FIG. 151.—ODONTOGLOSSUM X PHOEBE MAGNIFICUM, AS EXHIBITED BY MESSRS. CHARLESWORTH AND CO. AT THE TEMPLE SHOW.

tiful (still one of the best "whites"), President (crimson), and Enchantress were all remarkable for the size and colour of the flowers.

Mr. S. MORTIMER, Farnham, Surrey, staged a fine lot of blooms. Harry Fenn was the best crimson variety displayed in this group, and Victory the best scarlet; Adonis, White Perfection, and most of the other American sorts were all finely shown.

Mr. W. H. PAGE, Hampton, showed a fine assortment of these popular flowers, having such standard kinds as President Roosevelt (crimson), White Lawson, Mrs. T. W. Lawson, and Enchantress.

hibited well-grown Carnations, his varieties specially worthy of note being H. Elliott, G. Steel, and Souvenir de la Malmaison "Princess May."

Messrs. HUGH LOW & Co., Bush Hill, Enfield, were large exhibitors, having a fine exhibit in the tent and another in the open. Large specimens of "Malmaison" varieties were a feature; Princess May was finely shown, Lady Rose, Britannia, Floriana, Robt. Craig, and all other sorts were well shown.

Messrs. T. S. WARE, Feltham, had some fine blooms of Leander among others.

Messrs. R. H. BATH, LTD., Wisbech, exhibited

flowers that are fairly full in the centre. *Perle d'Or* is pretty as a bud. As cut blooms shown in boxes many of great beauty were observed in Hybrid Teas. Particularly fine were the blooms of Lady Roberts, pleasing in shape, and tinted with creamy-orange; *Kaiserine Augusta Victoria*, J. B. Clark, Oscar Cordel, Mrs. Sharman Crawford, Mme. Jean Dupuy, David Harum, and Golden Gate were shown in exquisite examples.

Messrs. H. CANNELL & SONS, Swanley Junction, showed a large number of Rambler Roses as a background to their exhibit of *Streptocarpus*, *Calceolarias*, &c.

BEGONIAS.

Tuberous-rooting Begonias were a great feature, and the advance made in these flowers is surprising. Double varieties were most noticeable, not only in size, but also in the form.

Messrs. T. S. WARE, Feltham, exhibited a very fine collection of double-flowering varieties in many fine shades of colours. Varieties with crimped petals were remarkable, and three new ones were granted awards. The whole of the plants staged were of remarkable quality, and are deserving of the highest praise.

Messrs. R. B. DAVIS & SONS, Yeovil, staged a good collection, including both double and single-flowering varieties of the finest types.

Mr. J. R. Box, West Wickham, made a good exhibit, fringed and fluted varieties being a great feature.

Messrs. BLACKMORE & LANGDON, Bath, made a fine exhibit of remarkable quality, and it would be difficult to imagine anything more perfect than some of his flowers.

Mr. A. L. GWILLIM, New Eltham, did not stage a large exhibit, but his flowers were of the highest quality. An Award of Merit was given to his seedling Mrs. J. C. Gwillim; *Pride of Eltham*, a rich crimson variety, is also worthy of note.

Messrs. J. LAING & SONS, Forest Hill, made a good exhibit, having double, single and fringed varieties of the best types.

HERBACEOUS AND ALPINE PLANTS.

HARDY plants have never before been seen at any Temple Show in such numbers and of such good quality, whilst in the method of their staging we can also record an advance.

Messrs. WALLACE & Co., Colchester, displayed a group of hardy plants in the big tent. The effective and pleasing arrangement of the plants surpassed all their former efforts, the general design being a well-conceived piece of rockery, on which were planted bold masses of *Eremuri*, a rich display of *Lilies*, of which the more notable examples were *L. Hansoni*, *L. monadelphum*, and *L. testaceum*; also many fine *Ixias*, cushion and other *Irises*, *Cypripediums*, &c. Shady peat-beds contained *Trilliums*, *Dodecatheons*, *Adiantum pedatum*, and other bog-loving plants.

Messrs. GEO. JACKMAN & SONS, Woking, had a very extensive exhibit of hardy things, in which *Trollius* (globe flowers), hybrid *Columbines*, and *Pyrethrums* were leading features. *Ramondia pyrenaica alba* was also very fine, and the group also contained many choice hardy *Cypripediums*, *Meconopsis cambrica*, *Eremuri*, *Early Gladioli*, *Spanish* and other *Irises*. At one end of the exhibit Messrs. JACKMAN displayed a fine group of large-flowering *Clematis*.

A fine specimen of *Echium callithyrsum* was exhibited by Miss B. TALBOT, Little Gaddesden House, Berkhamsted. (Cultural Commendation.)

Messrs. BARR & SONS, Covent Garden, London, W.C., had a large exhibit of hardy plants, including *Lilies*, *Irises*, *Ixias*, and *Tulips*, the latter representative of the old English *Darwin*, cottage, and May-flowering kinds. Other interesting things in the group were *Viola pedata*, *Trillium uniflorum*, a very charming kind; *Primula farinosa* and *Incarvillea grandiflora*, *Cushion Irises*, together with others of the hybrid *Regelio-cyclus* type, gave a most interesting touch of colour to the group.

THE GUILDFORD HARDY PLANT COMPANY, Guildford, had, as on previous occasions, a rockery, in which were planted choice Alpine and rock-garden shrubs. *Daphne cneorum* was very beautiful, as were also *Ramondias*, *Haberleas*, Alpine and other *Phloxes*, choice *Saxifragas*, *Cypripediums*, &c.

A small exhibit of rock-garden plants was arranged by the Misses KIPPING, Hulton, Essex, a large number of free-flowering Alpines being employed to good advantage.

Mr. M. PRICHARD, Christchurch, Hants., had an array of the best hardy, Alpine and herbaceous plants in flower. *Gentiana verna* was particularly fine, while *Ramondias*, and the Alpine *Asters*, *Ledum Lyoni*, *Dodecatheons*, *Saxifraga MacNabiana* were all very pleasing. Greater masses of colour were seen in the several forms of *Scilla campanulata*, *Hyacinthus amethystinus*, brilliant *Poppies*, *Eremuri*, *Irises*, *Pyrethrums*, *Pæonies*, &c. *Menyanthes trifoliata* (*Bogbean*) was in splendid condition. *Tulips* also were displayed in excellent condition.

Mr. FRANK LILLEY, St. Peter's, Guernsey, exhibited *Ixias*, *Sparaxis*, *Iris*, *Anemones*, &c.

Messrs. BAKERS, Wolverhampton, staged a large and varied group, in which were bold clumps of *Eremuri*, *Columbines*, and other tall subjects, together with a nicely-arranged and well-planted rockery, in which *Trilliums*, *Phloxes*, *Cypripediums* and the like were associated. The same firm exhibited a very extensive assortment of *Violas*, *Pansies* and *Pelargoniums* as cut flowers.

Mr. N. LOWIS, Leversdown, Bridgwater, displayed choice "Poppy" *Anemones*.

Mr. H. C. PULHAM, Elsenham, Essex, arranged an exhibit of Alpine plants, *Daphne cneorum* and *Androsace Clumbyi* being exceedingly good.

Anemones of the *A. coronaria* group were freely displayed by Messrs. REAMSBOTTOM & Co., Geashill, King's Co., Ireland.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, had a small exhibit of hardy plants, including *Tulips*, *Pæonies*, *Poppies*, *Geums*, &c., in company with Alpines.

Many fine varieties of *Oriental Poppies* were well displayed by Mr. W. J. GODFREY, Exmouth, varieties with crimson and terra-cotta shades being plentiful. Adjoining the *Poppies* were many varieties of *Zonal* and show *Pelargoniums*.

Mr. G. REDMAN (The Craven Nursery), Clapham, Lancaster, had a most delightful gathering of the choicest of Alpines arranged with much taste in a setting of well-weathered mountain limestone; the whole arrangement gave evidence of experience and skill. The exhibit was crammed with rare things, a few of which are *Daphne rupestris*, a mass of rich pink; *Haberlea rhodopensis virginialis*, *Edraianthus serpyllifolius*, a very handsome form; *Saxifraga aizoon rosea*, *S. A. lutea*, a rare kind; *Primula farinosa alba*, *Dianthus glacialis*, *Tiarella unifoliata*, &c. The *Vernal gentian* was simply a carpet of blossoms. The exhibit was one of the most fascinating groups of rare Alpines we have seen.

Messrs. RICHARD SMITH & Co., Worcester, contributed some *Pæonies*, *Pyrethrums*, *Irises*, and other showy and good perennials.

Ixias sent by Major-General CAMPBELL, Lieut.-Governor of Guernsey, were very pretty.

THE KING'S ACRE NURSERY COMPANY, Hereford, had an exhibit of Alpines of the showy and free-flowering class, together with some brilliant masses of *Gentiana verna*, *Cheiranthus allioni*, &c.

Mr. HOWARD H. CRANE, Highgate, exhibited tufted and other *Pansies*. In all some four-dozen varieties were staged, the blossoms arranged in shallow pans, looking far more natural than in the formal sprays as heretofore. We were pleased to note the change.

Messrs. G. & A. CLARK, Dover, had a large and varied assortment of the best hardy perennials in season, finely grown and well arranged. The masses of colour were most effective.

A rockery exhibit arranged and planted by Messrs. J. CHEAL & SONS, Crawley, attracted much attention, both by reason of its form and the effective manner of its planting.

Mr. B. LADHAMS, Southampton, brought a large collection of *Geums*, *Lupins*, *Iris*, and *Pyrethrums*, and Mr. KERSWELL displayed the *Gentianella* in boxes.

Anemone coronaria in variety from Mr. J. HARRIS, Blackpill, Swansea, made a fine show, the variety *The Bride* being unusually good.

Messrs. CARTER & Co., High Holborn, had arranged a rockery in the opening of No. 3 tent.

A group of herbaceous plants shown by Mr. AMOS PERRY, Enfield, was very good. *Eremuri*, *Poppies*, *Gerberas*, *Cushion*, and other *Irises*, *Pæonies*, *Lilies*, and a host of other things were

in splendid condition. *Phlox canadensis*, Perry's variety, still continues a great favourite.

Messrs. G. BUNYARD & Co., Maidstone, had a splendid lot of the more showy hardy plants, such as *Cushion Irises*, *Tulips*, *Geum*, *Poppies*, *Pæonies*, *Primula japonica*, *Pyrethrums*, &c.

Messrs. T. S. WARE & Co., LTD., Feltham, had a mixed group, in which *Carnations*, Alpines, and choice hardy plants were seen to advantage. *Carnation Leander* was very fine.

The Hon. A. H. T. de MONTMORENCY, Carrickmines, Dublin, staged a fine exhibit of old-English *Tulips* in the best varieties.

Mr. R. C. NOTCUTT, Woodbridge, displayed a rich and varied assortment of perennials of such subjects as *Trollius*, *Poppies*, *Lilies*, and *Pyrethrums*.

As on other similar occasions, the rockery exhibit of Messrs. BACKHOUSE & SON, York, was quite a feature. Many choice Alpines were arranged with skill, the flower-laden mountain pasture in miniature making a very pretty scene.

Mr. G. REUTHE, Keston, Kent, had a large assortment of Alpines and choice flowering shrubs, and these, with a big display of *Tulips*, made one of the most varied and interesting of the many hardy plant exhibits. *Embothrium coccineum*, *Crinodendron Hookeri*, *Magnolia Watsoni*, and a choice lot of *Rhododendrons* were noted, and *Gentians*, hardy *Orchids*, *Saxifragas*, &c., were in abundance.

The Misses HOPKINS, Barming, near Maidstone, had an interesting exhibit, chiefly of Alpines arranged on rockwork. *Primula luteola* was very fine.

Messrs. KELWAY & SONS, Langport, Somerset, had a rich display of *Pæonies* and *Pyrethrums*, each in considerable quantity and variety.

Messrs. STORRIE & STORRIE, Dundee, had an interesting lot of *Primulas* and *Polyanthus*, showing the development along certain lines by crossbreeding and evolution.

A large group of *Lathyrus Sibthorpii*, a species with deep rosy-lilac blossoms, came from Mr. BAKER, Oxford.

SOME CUT FLOWERS.

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, had a large exhibit of *Sweet Peas*, *Lily of the Valley*, &c.

Messrs. H. B. MAY & SONS, Edmonton, brought a fine array of cut *Pelargoniums* of such fine varieties as *Hall Caine*, *Lord Kitchener*, *Gloriosa*, &c.

Mr. C. F. WATERS, Balcombe, Sussex, staged a most beautiful lot of *Carnations*, *Lady Carlisle*, *Enchantress*, and *Pride of Exmouth* being notable examples.

Mr. H. J. JONES, Lewisham, had a big display of *Pelargoniums* and *Sweet Peas*, very large and representative gatherings of each being staged.

Sweet Peas from Mr. J. UNWIN, Histon, Cambs., were also fine, the white variety *Nora Unwin* being very good. There were many promising seedlings in the group.

Messrs. R. H. BATH, LTD., Floral Farms, Wisbech, had a large group of handsome flowers of *Tulips* and *Carnations*.

Messrs. CARTER, PAGE & Co., London Wall, E.C., had a large collection of *Fuchsias*, *Antirrhinums*, *Phlox Drummondii*, *Dahlias*, and *Pelargoniums*.

Mr. W. A. MYERS, Swanmore House, Bishop's Waltham (gr. Mr. E. Molyneux), staged a fine collection of double and single *Lilac*, the trusses and individual blossoms being extremely fine.

Messrs. WALLACE & Co., Colchester, staged a large group of *Darwin* and other *Tulips* in excellent condition.

Mr. A. F. DUTTON, Iver, Bucks, had *Tree Carnations* in the best condition, many of the blossoms being of quite an exceptional large size.

Messrs. W. H. ROGERS & SONS, LTD., Southampton, had cut blooms of *Rhododendrons*, *Azaleas*, &c., in considerable variety.

Messrs. G. STARK & SONS, Great Ryburgh, Suffolk, had a large assortment of *Sweet Peas*, *Pansies*, &c. The *Pansies* were of much merit.

Cut *Pelargoniums* formed the chief feature of an exhibit from Mr. VINCENT SLADE, Taunton, Somerset.

Sweet Peas from Mr. C. W. BREADMORE, Winchester, were unusually fine, the varieties *Helen Lewis*, *Etta Dyke* (a really splendid white), and *Mrs. Collier* (cream), being the best in a very extensive display.

Mr. S. MORTIMER, Farnham, set up a splendid lot of Marechal Niel Roses, arranged in front of choice Carnations.

Messrs. HOGG & ROBERTSON, LTD., Dublin, had a fine lot of Darwin and other late-flowering Tulips, the varieties Ixioides, Suzon (fine rose-pink), and Chameleon being noticeable in a huge display.

Messrs. DOBBIE & Co., Rothesay, staged Sweet Peas, Columbines, Pansies, Marigolds, and other flowers in many varieties. The Pansies were really a superb lot, and the colours noted in the hybrid Columbines were distinct and beautiful.

Messrs. ALEX. DICKSON & SONS, Belfast, had a magnificent display of Tulips, excellent in every way for so late a date. Clara Butt, the "Queen" of the rose-coloured Tulips; Gustave

by Messrs. E. W. KING & Co., Coggeshall, Essex.

FERNS.

There was an absence of any novelty, and none was entered for award, yet Ferns were well shown.

The group of *Nephrolepis todeaoides*, from Messrs. T. ROCHFORD & SONS, LTD., Broxbourne, attracted much attention, and the plants were certainly superbly grown, representing one of the most remarkable varieties we have of this now popular Fern.

Messrs. H. B. MAY & SONS, Upper Edmonton, put up a superb group. Space was limited, so they were obliged to elevate the plants in order to obtain the maximum room. The newer varieties of *Nephrolepis*, including *Whitmani*, *exaltata superba*, *todeaoides*, and others were well

and included *A. nidus*, a Fern introduced by this firm for market purposes. *A. Mayi* was shown in its best form. *Davallias* were represented by large specimens; *Platycteriums* included fine specimens of *P. grande*, *P. angolense* and other choice sorts. *Lomarias* were well shown, and included the bright-coloured *L'Hermieri*, but the bright-tinted Ferns were not quite so prominent as is usual at this exhibition.

EXHIBITS ARRANGED OUT-OF-DOORS.

Messrs. J. VEITCH & SONS, LTD., Royal Exotic Nursery, Chelsea, showed a large group alongside of the marquee, consisting of *Rhododendrons*, *Azaleas*, inclusive of *hybrida flore plena* in variety, *A. mollis* × *sinensis*, Rollison's *A. rosæflora*, double flowered and large. The



FIG. 152.—MAJOR HOLFORD'S LÆLIO-CATTELEYA "GOLDEN GLORY": COLOUR OF FLOWERS GOLDEN-YELLOW, WITH ROSY-CRIMSON MARKING ON LIP.

(Awarded First-Class Certificate at the Temple Show.)

Doré, Loveliness, Cherry Ripe, King's Court (bronze), and Gorgeous were all notable sorts in this exhibit.

Lord ALDENHAM, Elstree (gr. Mr. Beckett), had a beautiful lot of flowering shrubs—*Exochorda grandiflora*, Tree Pæonies, Honey-suckles, Azaleas, and many others.

Mr. HENRY ECKFORD, Wem, Salop, brought a fine gathering of Sweet Peas, the large collection containing many good things. Henry Eckford (pale orange) is a variety of very striking appearance.

A small, yet very interesting, gathering of old English Tulips came from Mr. J. MCKERCHAR, 35, Giesbach Road, Holloway.

Sweet Peas in large numbers were exhibited

shown. *Davallias* included *D. filiensis*, *D. Veitchiana*, *D. ornata*, and many others. *Adiantums* were good, *A. Veitchi* being very bright in colour. *A. Farleyense* is always well shown by this firm. *Platycteriums* were a great feature. The same firm arranged in the open a large group of hardy British Ferns. The *Polypodiums* included some of the best plumose varieties. *Asplenium felix-fœmina* was also represented by some of the best crested forms. There were handsome *Scolopendriums*, *Polystichums* (*Aspidiums*), &c.

Messrs. J. HILL & SON, Lower Edmonton, had a meritorious group, and here again the plants were elevated, some being fully 20 feet above the ground level. *Aspleniums* were a great feature,

Rhododendrons were shown as bushes and standards, the standards being about 6 feet high, and every plant showed a wealth of bloom. The good qualities of *Philadelphus Lemoinei* *Boule d'Argent* was shown by a number of plants about 3 feet high grouped together in a basket. The *P. L. pavillon blanc*, a better thing, was likewise observed. Its white blooms are 1½ inches across, and very numerous. A nice "Judas" tree in a pot, well flowered, is uncommon. A good thing in *Viburnums* was noted in *V. tomentosum* *Mariesii*, the cut sprays shown being crowded with the white, single flowers in flat cymes. The graft-sport *Cytisus* × *Adami* was noted, the yellow and purplish flowers growing on shoots springing on the same stock.

Hydrangeas were numerous, and many species and varieties were represented. A good show was made with varieties of herbaceous Pæonies. *Incarvillea Delavayi* and *I. grandiflora* of deeper tint were noted in good flower; *Primula pulverulenta*, *P. Veitchii*, a new and excellent variety of *P. sibirica* (see fig. 147), *P. japonica* var., *P. x Unique*.

A natural-looking rockery was erected by Messrs. PULHAM & SON, and nicely planted by them with Alpines, dwarf Conifers, &c.

Mr. THOS. CRIPPS, nurseryman, Tunbridge Wells, exhibited large, pictorial trees, chiefly belonging to the genus *Acer*. Among them were many Japanese species and varieties, *Clematis*, *Rhododendrons*, *Azaleas*, and *Vitis*.

Messrs. J. WATERER & SONS, Bagshot, Surrey, showed *Rhododendrons* in much variety, among them Mrs. Tom Agnew, a delicate flesh-coloured flower, with a patch of light crimson spotting on the upper segment of the bloom; William E. Gladstone, Helen Waterer, a mass of *R.* hybridum *azaleoides*, some plants of *R.* Baroness Henry Schröder; of *R.* George Storey, a grand truss and pure white flowers; of *R.* Mrs. E. C. Stirling, puce, very large and fine; and of *R.* Pink Pearl, one of the finest.

Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, exhibited a great quantity of hardy trees and shrubs, such as species and varieties of *Acer*s, *Fagus*, *Ivy*, *Vitis*, the pretty blue-flowered *Ceanothus dentatus*, good as a free-standing shrub or for covering a wall space; and Spanish broom, plants 1 foot high and free in flowering.

Messrs. PAUL & SON, The Old Rose Nurseries, Cheshunt, exhibited a group in which there were several fine new varieties of *Rhododendrons* of much beauty, viz., Helen Paul, H. M. Arderne, Duke of York, Boadicea, R. Fortunei, Geo. Bennington, several fine Lilacs, and large plants of *Hydrangea arborescens grandiflora* alba, pure white, and the plant free in flowering; shoots of *Cercis siliquastrum* alba, a faint tinge of purple showing in the flowers and betraying the origin of this sport; *Syringa* (Lilac) *persica* alba, and several fine varieties of Lilac of Continental origin.

Messrs. W. FROMOW & SONS, Nursery, Chiswick, showed Japanese *Acer*s.

Messrs. RICHARD SMITH & CO., LTD., The Nurseries, Worcester, were also large exhibitors of these and other pictorial subjects, including some Conifers having variegated foliage, such as *Thuyas*, *Yews*, and *Cypresses*.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, exhibited ornamental trees from 3 feet up to 12 feet high, including *Quercus*, *Acer*, *Dimorphanthus mandshuricus*, *Sambucus*, *Fagus* in variety, *Vitis*, *Weigela*, *Rhododendron*, *Viburnum plicatum*, and a number of objects of the topiary art in *Buxus* and *Taxus*.

W. ROUPPELL, Esq., Roupell, Park, West Norwood, showed four fine examples of *Polystichum angulare proliferum*.

Anchusa italica, Dropmore variety, in examples 5 to 6 feet in height, was shown by Mr. MAURICE PRICHARD, of Christchurch, Hants.

Messrs. H. B. MAY, The Nurseries, Upper Edmonton, had in an enclosed square a large bed of the finest *Verbenas*, excellent for pot culture and bedding out, some with white "eyes," others without, the flowers being of purple, blue, scarlet, and pink: all great improvements on the old varieties. Other plants noted were *Salvia coccinea* Zurich, *Lobelias* in three different colours; *Heliotrope* Lord Roberts, a capital dwarf variety for pot work; some richly coloured *Coleus*, Ivy-leaved *Pelargoniums* of strange new tints in the flowers; two new Zonal *Pelargoniums*, and a number of well-grown British Ferns.

Messrs. BARR & SONS, King Street, Covent Garden, exhibited miniature trees, an arrangement of Alpine and other rock plants on a flat surface, such as might be formed on a balcony or in a roof garden.

B. LADHAMS, LTD., 60, High Street, Southampton, showed *Lupin Rosy* Roman, *Anchusa* "Opal," *Olearia stellulata*, floriferous little plants growing in pots; *Aquilegia vulgaris x glandulosa*, &c.

Mr. AMOS PERRY, Hardy Plant Farm, Enfield Chase, Middlesex, showed a variety of *Phlox canadensis*, different in tint, upright in growth, flowers longer than the type.

Messrs. W. CUTBUSH & SON showed many objects of topiary art, well grown, and showing years of culture and training.

Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Middlesex, showed a large group of "Malmaison" Carnations. A plant of Princess of Wales had 50 open blooms and flower-buds, and another 53.

Messrs. W. CUTBUSH & SON, as in some previous years, had constructed a rockery on a large scale, and well furnished it with suitable plants in a flowering state. As the planting had been liberally done, the plants being not singly planted but in colonies, the effect was good.

Messrs. DAVID RUSSELL & SON, Essex Nurseries, Brentwood, showed a group of miscellaneous plants. These consisted of *Azaleas* and *Acer*s from Japan, *Rambler* Roses, *Clematis*, hybrid *Rhododendrons*, *Tree* *Ivies*, and many species of pictorial trees, &c. This firm showed *Rambler* Roses in variety, Japanese *Acer*s, hardy *Azaleas*, hybrid *Rhododendrons*, *Euonymus*, *Brooms*, and *Viburnums*.

Messrs. F. CANT & CO. had what seemed to be overflow groups of *Rambler* Roses.

Messrs. BLACKMAN & LANGDON, Bath, showed their bedding *Begonia* *Argus*, a fine, bright scarlet variety of compact growth, having flowers of a double form and sufficient substance as to make a good out-of-doors subject.

Messrs. J. CARTER & CO., High Holborn, London, had an exhibit of Japanese or Chinese trees, Conifers, &c.

Messrs. HUGH LOW & CO. showed a collection of *Callistemons* of various shades of crimson, also a white one. The plants were plentifully covered with their bottle brush-like flower heads. The standard forms were particularly effective. Messrs. H. Low also exhibited some enormous fruits of *Strawberry* *Kentish* *Favourite*, and some plants in flower, in order to show its great cropping capabilities.

Floral Committee.

AWARDS OF MERIT.

Saxifraga aizoon rosea.—The most beautiful of the coloured section of the encrusted *Saxifragas*, and though as yet rare it is happily of a type that quickly increases. The purplish flower stalk is seen to advantage above the silvery rosette of leaves, and lends an enhanced beauty to the flowers. From Mr. FARRER, the Craven Nursery, Clapham, Lancaster.

Primula x Unique (*P. pulverulenta x P. Cockburniana*).—This valuable and interesting hybrid we may regard as the forerunner of a new race of hardy *Primulas*. The new-comer is especially welcome in that it embodies all that is good in both parents, and partakes much of the size of the seed parent (*P. pulverulenta*), and has something of the rich colouring of the other parent. The mealy character is maintained in the hybrid, and it has the freedom of flowering characteristic of *P. pulverulenta*. From Messrs. JAS. VEITCH & SONS, LTD., Chelsea.

Cytisus Firefly.—A very showy and good form of *C. Andreanum*. Shown by Messrs. R. W. WALLACE & CO., Colchester.

Papaver Princess Ena.—This is a beautiful seedling Oriental Poppy from the well-known Queen Alexandra variety. The flowers are of a medium size and are of a soft salmon shade, darker in the centre. A satin-like sheen is spread over the main colour, rendering the variety quite distinct from all others of its class. From Mr. AMOS PERRY, Enfield.

Tulip Gorgeous (Darwin).—A handsome Tulip of the largest size: the colour, as seen under canvas, is bronzy-red, with a yellow and clouded base. From Messrs. ALEX. DICKSON & SONS, Belfast.

Verbena aublitia compacta.—A dwarf-growing variety that is nearly hardy. The plants as shown were not more than 6 inches in height, the leafage being firm and hard. The rose-coloured blossoms are produced freely even in quite small plants. The variety comes true from seeds, and should be of much value for bedding purposes. From Messrs. DOBBIE & CO., Rothsay.

Actinidia chinensis.—This Chinese plant has some resemblance to a species of *Vitis*. The ovate-acuminate leaves are of considerable beauty, especially when very young, for with

the new growths they assume a pleasing reddish tint, which passes later into a handsome velvety-green. The foliage is densely hairy, and it is to these that the young leaves owe their beauty in the young state, for they are then reddish. For covering a pergola or trellis work, or training up pillars and walls, it is especially desirable. Shown by Messrs. JAMES VEITCH & SONS, LTD.

Azalea Mme. Anthony Koster (Siollis x Sinensis).—This variety owes its principal distinctive feature to a shade of pink in the wing or side petals. The general colour is yellow, and the pink colouring seen on the yellow ground gives a charming shade, which we may describe as orange-pink. The flower truss is well formed, and is of very attractive appearance. The plant was shown as a standard by Messrs. R. & G. CUTBERT, Highgate.

Carnation Marmion.—This at first sight has the appearance of a variety of *Souvenir de la Malmaison*, but it belongs to the winter-flowering section, and was raised from Mrs. Lawson x Prosperity. In habit also the plant resembles the "Malmaison" type, being exceedingly strong of growth, and with large, very much curled foliage. It belongs to the multi-coloured or "fancy" section, being bright cherry-red, margined and striped with white. The flowers are exceedingly large. Shown by Mr. H. BURNETT, Guernsey.

Begonia Mrs. J. C. Gwillim.—Of the tuberous-rooting section, and in colour a pleasing salmon-rose. The flower is large, and possesses a charming Rose-shaped centre. Shown by Mr. A. LL. GWILLIM, New Eltham.

Begonia Rhoda Pope.—The flower of this variety is a delicate shade of pink, merging to almost white in the centre. It has the *Camellia* form, and is altogether most handsome.

Begonia Wm. Marshall.—A variety of the richest scarlet, the large, full petals being pleasantly crenated. The flower is of the "rosette" form.

Begonia Lady Cromer.—Another flower of the "rosette" type, and having very broad petals of a salmon-rose shade. The flowers are large and broadly crenated.

The above three *Begonias* were shown by Messrs. T. S. WARE, LTD., Feltham.

Rose Dr. William Gordon.—A pink variety, figured and described in our issue for August 25, 1906, p. 142. Shown by Messrs. W. PAUL & SON, Waltham Cross.

Caladium Thomas Tomlinson.—A variety of medium-sized foliage. The leaves are distinctly sagittate in shape, and in colouring are most beautiful. The centre of the lamina is of a rich red colour and the margin is green, the intermediate area being splashed with the two colours. Shown by Messrs. JAMES VEITCH & SONS, LTD., Chelsea.

FRUIT TREES.

The only group of trees of a distinctive kind was that sent by Messrs. T. RIVERS & SON, of Sawbridgeworth, and placed in the large tent. It comprised 30 trees of both standard and pyramidal form in 10-inch and 12-inch pots, the principal fruits so presented being *Nectarines*, *Early Rivers*, and *Cardinal*. Each of the trees carried from 12 to 20 ripe and richly-coloured fruits. *Peach Peregrine* was also included, as were *Cherries* *May Duke*, *Early Rivers*, and *Elton*. A prominent feature was a basket of 18 fine fruits of *Early Rivers* *Nectarine*.

A striking collection, chiefly of *Cherries*, came from *Gunnorsbury* House, sent by LEOPOLD DE ROTHSCHILD, Esq. (gr. Mr. J. Hudson). Three heavily fruited trees of *Governor* *Wood*, *May Duke* and *Early Rivers*, in pots, formed a background, these being fronted by numerous baskets, 17 of which contained selected *Cherries*, each basket containing from 120 to 150 ripe fruits. There were 10 varieties, as follow:—*Blacks*: *Beurré de Schrecken*, *Early Rivers*, and *Guigne d'Annonay*. *Reds*: *Empress Eugénie* and *May Duke*. *Whites*: *Early Bigarreau*, *Governor* *Wood*, *Reine Hortense* (very fine), *Elton*, and *Belle d'Orléans*. In addition, there were baskets containing very fine fruits of *Early Rivers* *Nectarine* and *Early Rivers* *Plum*. The whole of this really fine collection was gathered in one house at *Gunnorsbury* that measured 32 feet by 18 feet only.

COLLECTIONS OF FRUIT.

From Lord ALDENHAM, Aldenham House, Elstree (gr. Mr. E. Beckett), came a collection of 20 Melons; the fruits were all finely finished and richly perfumed. Amongst the varieties were Sutton's Scarlet, Emerald Gem, Royal Favourite, Hero of Lockinge, Ringleader, and others. Being generally elevated in dishes on stands, and pleasingly dressed with foliage, the group was in excellent taste.

From Messrs. G. BUNYARD & Co., Maidstone, came a wonderfully well-preserved collection of Apples and Pears, there being of the former some 80 dishes or baskets. The varieties of Pears shown were Uvedale's St. Germain, Catillac, and Belle des Arbres. The Apples seemed to be in all cases wonderfully sound and firm. How far, if tasted, the best would compare with Colonial Apples just now, no proof was afforded. Very fine amongst the varieties were Calville des Femmes, Prince Alfred, Annie Elizabeth, Lord Derby, Bramley's Seedling, Belle du Bois, Wagener, Barnack Beauty, King of Tomkins County, Ontario, Bow Hill, Beauty of Kent, &c. Rarely has a better preserved collection of home-grown Apples been seen at the end of May.

Messrs. T. LAXTON & SONS, Bedford, had a large group of plants of their very fine Strawberry Bedford Champion, in pots, some 60 in all, and superbly fruited. With these were also four large baskets of picked fruit, each one contained 60, all very fine and richly-coloured. The fruits are rounded and of a bright scarlet hue.

Messrs. J. & F. CHATFIELD, Southwick, Sussex, had plants in pots of Strawberry Royal Sovereign, also specially fine, picked fruit in baskets and dishes.

VEGETABLES.

A very excellent collection of these was staged from the gardens of the UNIVERSITY COLLEGE, Reading (Mr. C. Foster, Instructor). The samples were mostly in boxes or baskets, and included Tomatos Eclipse, Sunrise, Winter Beauty, Satisfaction, Sunbeam, and others; Carrots Early Gem and Champion Scarlet Horn; Peas Early Giant, Ideal, and Little Marvel; Potatos Ringleader, May Queen, and Duke of York; Cauliflowers First Crop and Magnum Bonum. There were also Cucumbers, Vegetable Marrows, Lettuces, Cabbages, Asparagus (a superb sample); a large free-rooted plant and stems of Sutton's Perfection Asparagus, showing robustness; also a few Melons and Royal Sovereign Strawberries.

From the STUDLEY CASTLE COLLEGE GARDENS (Miss Faithful, Warden), was sent a collection of Red Currant, Tomatos, in pots, and fronting them Broccoliis, Cauliflowers, Tomatos, Cucumbers (rather old), Potatos, Asparagus, Marrows, Carrots, dwarf French Beans, and Lettuces. The Broccoli heads were unduly large.

Large bundles of Giant Asparagus, each one containing 100 heads, were sent respectively by Mr. R. STEPHENSON, Burwell, Cambridgeshire, and Mr. A. J. HARWOOD, of Colchester, both samples displaying high-class culture.

Mr. HOBDAV, Romford, had numerous stems 4 feet in length of his new Rhubarb known as Hobday's Giant.

Messrs. SUTTON & SONS, Reading, had a singularly interesting collection of plants in pots of various Potato species, and seedlings from them. The strongest plants were those of Solanum Commersoni, having purple flowers, from Uruguay. Then came S. tuberosum, with flowers deeper in colour, and taller plants of S. maglia, from Kew-grown tubers. S. maglia has white flowers, and S. verrucosum is dark purple; also seedlings from a variety of Labergerie's, and from Blue Giant, showing the ordinary leaf variations found in commercial seedlings. Of tubers in dishes were large ones of the two varieties just named, old and new ones, grown in frames; very excellent samples of Epicure, Up-to-Date, Sir J. Llewellyn, Early Puritan, Abundance, Gladiator, May Queen, Windsor Castle, Satisfaction, Superlative, Reliance, and Ninetyfold among white tubers; and Edgcote Purple, Early Rose, The Dean, King Edward, Lord Tennyson, and Purple Eye, among coloured varieties. The collection included 45 dishes and varieties.

There remain for mention two very extensive and remarkable collections of vegetables, each occupying a table run of 35 feet, and presented

by growers who, without being in any sense rivals, certainly rank amongst the foremost vegetable exhibitors of the day. These were Mr. E. Beckett, gr. to Lord ALDENHAM, Elstree, and Mr. J. Gibson, gr. to the Duke of PORTLAND, Welbeck Abbey, Worksop. Mr. BECKETT staged about 110 dishes and Mr. GIBSON 135 dishes, this collection being perhaps rather too densely packed. Mr. Beckett had his dishes more thinly displayed, and included as a background stems of Victoria and the Sutton Rhubarb; Celeries Solid White, Dwarf Gem, Superb Pink, and Standard Bearer; Broccoliis Latest of All, Late Queen, and Satisfaction; also Seakale Beet, Seakale, bundles of Asparagus, Lettuces, and Cabbages; and on the table, Cauliflowers Magnum Bonum and Early Forcing; Cucumbers Matchless, Peerless, Al, Every Day, Satisfaction, and Delicacy; Tomatos Winter Beauty, Eclipse, Peach-bloom, Sunbeam, Golden Perfection, Satisfaction, Best of All, and Al; Potatos Ashleaf, Sir J. Llewellyn, Crimson Beauty, Duke of York, May Queen, Windsor Castle, and King Edward; Peas Early Giant, Duke of Albany, Continuity, Green Gem, and Gradus. There were also numerous dishes of dwarf French and Golden Butter Beans, Vegetable Marrows, Radishes, and many other kinds.

Mr. J. GIBSON had clusters of Cauliflowers White Queen, Purity, Early London, and Magnum Bonum; Broccoliis Pearl, Satisfaction, Standwell, Latest of All, and Late Queen; Cucumbers Epicure, Prizewinner, Al, Perfection, Lord Roberts, Peerless, Matchless, and Delicacy, in all 14 dishes; Cabbages Tender and True, Flower of Spring, and April; Rhubarb The Sutton and Royal Albert (3 feet long); Lettuces Commodore Nutt, Golden Ball, Ideal, Marvel, and Supreme; Tomatos Al, Eclipse, Polegate, Satisfaction, Best of All, Prince of Wales, Yellow Dessert, Winter Beauty, The Grape, and others; Potatos Satisfaction, Sharpe's Victor, Reading Russett, May Queen, Superlative, Gladiator, and Windsor Castle; Carrots Early Gem, Early Nantes, and Favourite; Peas Green Gem, World's Record, Duke of Albany, Early Giant, Superlative, Alderman, and Centenary, these latter being wonderfully fine. There were many other kinds of vegetables, making up a wonderful collection.

A fine exhibit by Messrs. JAS. CARTER & Co., High Holborn, consisted of their Tomato Sunrise. The fruits were seen in great clusters on tall sticks 5 feet in height forming a tripod, and some heavily fruited plants in pots.

[For the list of Medals, Cups, &c., awarded by the Council, see p. xiii.]

KEW GUILD.

MAY 27.—The annual meeting and dinner of past and present Kew men was held at the Holborn Restaurant on the above date. The annual meeting was presided over by the President, Mr. W. Watson, A.L.S., curator of the gardens, and it was more largely attended than on former occasions. The report of the Committee for the past year showed that the total assets of the Guild are now more than £300; the sum of £50 was invested in stock, and a balance of more than £10 remains as the result of the year's saving. The *Journal* is in greater demand than ever, and nearly 700 copies were distributed in 1906.

The meeting decided that a new president should be elected annually, and that the chairman of the annual dinner should act in that capacity until the next annual gathering. A letter from a member in Egypt was read by the Secretary, in which the writer advocated some change of policy, whereby the interests of those members who were practical gardeners, and especially of those in Colonial service, should be championed by the Guild. After discussion, it was decided that the committee should be empowered to consider the question, and, if necessary, to co-opt other members to assist in the deliberations.

A statement recently made in the House of Commons to the effect that the wages paid to the young gardeners at Kew were low partly because they were only apprentices, was the subject of a discussion, and evoked much indignation. The following resolution was unanimously adopted:—

"That this meeting of the Kew Guild, composed of past and present gardeners and others employed at Kew, protests against the statement made officially by

Sir E. Strachey in the House of Commons on May 23, that 'the men employed at Kew are not gardeners but apprentices.' They are men of the average age of 23, who have had at least five years' professional training before entering Kew as journeymen gardeners, and their duties at Kew are the care and cultivation of the living collections of plants. They work from 6 a.m. to 6 p.m. in summer, and from daylight to dark in winter; they also attend certain lectures in their own time at night after their day's work is done. They are certainly as much entitled to be called gardeners as any other men of the same age and training, and it is a misrepresentation of the facts to describe them as apprentices."

The dinner, presided over by Mr. George Massee, was as largely attended as ever, and afforded pleasant opportunities for reminiscences between old friends, many of whom had assembled from distant quarters of the empire.

ROYAL GARDENERS' ORPHAN FUND.

MAY 23.—The 19th annual festival dinner of the supporters and friends of this institution was held on this date at De Keyser's Royal Hotel, Victoria Embankment, E.C., under the presidency of the Right Hon. the Lord Mayor, Alderman Sir William P. Treloar, and he was supported by Sheriff W. H. Dunn, Messrs. Harry J. Veitch, Edward Sherwood (treasurer), Leonard Sutton, W. A. Bilney, and a company numbering 150. The function proved a great success, and a sum of more than £1,000 was raised in aid of the funds of this deserving gardening charity at and in consequence of the dinner. No better President for such a meeting could be found than London's present Chief Magistrate, whose sympathies with unfortunate children are well known. The tables were lavishly decorated with choice flowers, the gifts of friends and supporters of the charity, and decorative plants adorned the approaches about the magnificent room in which the function was held, the scene eliciting from the Lord Mayor the remark, "It is the most beautiful show I have ever seen."

When the usual loyal toasts had been honoured, the Chairman proposed the toast of "The Royal Gardeners' Orphan Fund." He stated the duty of caring for orphans, but pointed out that it did not need any speech of his to press the claims of the charity upon his hearers, and he called upon Edward Sherwood, Esq., the hon. treasurer, to furnish some particulars of the charity.

Mr. Sherwood stated that last year's income was a record one, but the need for increased support is urgent, for, whereas, in 1905, 13 beneficiaries were added to the Fund, last year 19 were added, and the institution now maintaining a total of 122 orphans, in addition to aiding others with temporary relief. They had collected a grand total of £34,000 since the Fund was inaugurated, and had invested £11,000, but this latter sum was not sufficient to discharge their liability, as the average number of years the children already on the Fund will receive benefit is 9½, and this will absorb a sum of £14,000. The annual subscription list is very small; indeed the amount is not more than £300, but he was glad to know that every penny received at the dinner or elsewhere is applied to the orphans, the returns from the invested funds being sufficient to pay all the working expenses.

The next toast, that of "Gardeners and Gardening," was proposed by Sir Albert Rollit in a speech which showed Sir Albert's wide and varied knowledge. Having a knowledge of gardens in France, Germany, Florida, Damascus, and elsewhere, he proclaimed England the garden of the world, London a garden city, and the Thames the garden river of the universe. Not only our gardens, but our flower shows were the best in the world, and the British gardener was a person who specially claims our consideration.

Mr. W. A. Bilney replied, and declared gardeners generally to be honest, sober men, whom employers should treat as fellow men, for they will find them guides and philosophers. He hoped no union of gardeners would be formed during his lifetime. It was disagreeable to contemplate 13 or 15 gardeners on an estate being ordered "out" by a strike committee, the result of which would be that the plants would languish and die. If ever this were to take place it would kill horticulture in this country.

The next toast was "The Visitors," proposed by Mr. John Assbee, and responded to by Sheriff W. H. Dunn, who, being a member of the Council of the Royal Botanic Society, claimed that

that Society is doing much for the interests of horticulture. Mr. H. B. May proposed the health of the Chairman, and said that Sir William Treloar would be best known to posterity as the "Children's" Alderman. The present was the first occasion on which the festival dinner was presided over by the Chief Magistrate for London. "The Press" was proposed by Mr. W. Poupert, and suitably responded to by Mr. John Collingridge.

The Secretary announced a sum of over £1,000 as the result of the gathering. Among the principal subscribers and collectors were those following:—Messrs. Sutton and Sons, £100; Messrs. Hurst and Son, £52 10s.; Mr. Edward Sherwood, £30; Messrs. N. M. Rothschild and Sons, £26 5s.; the Lord Mayor, £10 10s.; Mr. Leonard Sutton, £10 10s.; Mr. George Reynolds, £44 13s. (including £10 10s. from Mr. Leopold de Rothschild and £10 10s. from Mr. Anthony Waterer); Mr. George H. Cuthbert, £40 2s. 6d.; Mr. J. F. McLeod, £32 10s.; Mr. James L. Kinnell, £27 7s.; Mr. W. A. Garaway, £18 13s. 2d.; Mr. R. Hooper Pearson, £15 15s. (including 5 guineas from the Gardeners' Chronicle, Ltd); Mr. Whitpain Nutting, £12 1s. 6d.; Mr. G. L. Caselton, £11; Mr. P. de Keyser, £10 10s.; Mr. J. C. Eno, £10 10s.; Mr. H. F. Tiarks, £10 10s.; Mr. T. W. Sanders, £10 10s.; Messrs. James Veitch and Sons, Ltd., £10 10s.; Mr. P. C. M. Veitch, £11 11s. 6d.; Messrs. Barr and Sons, £10; and Covent Garden friends, per Mr. John Assbee, £170.

It may be added that the floral arrangements were carried out by Mrs. Ritz, and among the firms who contributed flowers or plants were Messrs. Jas. Veitch and Sons, F. Sander and Sons, Barr and Sons, T. Rochford and Sons, A. Smith, — Crouch, Otto Heihle, Engelmann, &c.

Obituary.

E. RANGER JOHNSON.—The many horticultural friends of this widely-known and much-respected journalist will regret to learn of his death on May 16, at Eardley Crescent, Earl's Court, S.W., in his 70th year. Mr. Ranger Johnson was one of the oldest members of the editorial staff of the *Morning Post*, with which paper he became associated in 1881. He came to London from the West of England early in life, and brought with him a love of floriculture in particular and an enthusiasm for horticulture in general, which remained with him through life. For many years he was a regular attendant at the principal metropolitan flower shows, and had few equals on the daily Press as a writer on subjects connected with gardening.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

BEANS: J. R. The blackened foliage of the Beans is not associated with any organic disease. It may possibly be caused by rapid atmospheric changes. The plants themselves afford no solution of the mystery.

CARNATION "YELLOWS": F. A. This yellowing of the foliage of Carnations is still somewhat of a puzzle, because no organisms can be found to account for it. It has sometimes been called Bacteriosis, and cultivators have been recommended to keep the foliage dry and also to syringe with diluted Condry's Fluid, but we have heard of no successful treatment.

CARPENTER AND DESIGNER: A. M. Your advertisement will answer most of your questions better than we can. Not only is a knowledge of geometry necessary in landscape gardening, but an intimate acquaintance with the habits of certain plants of all kinds, their suitability for hardy soils and positions, colour of their flowers, &c., is equally important. If you pursue a knowledge of the art of geometry, it will be very useful in your own trade, and

especially useful in the theory of building construction, which is taught at most polytechnics and art centres. It would probably pay you best to stick to your own "last."

CURRENT LEAF BLISTER: E. G. W. The blisters on the leaves of your Black Currant appear to be caused by a minute insect. If you will send us samples of the diseased fruit, we will examine them.

FRUIT CULTURE FOR PROFIT: M. J. F. You should certainly obtain some knowledge of the business before you commence on your own responsibility. The capital you mention is sufficient to make a start upon, but you must remember that you will have to compete with men of experience and wide knowledge of the subject. Make enquiries in such fruit-growing centres as Evesham, Worthing, Swanley, &c., and endeavour to obtain work for a year or more in one of the most famous firms. You would probably meet with better success in the fruit-growing colonies. See also reply to *Suisse Amateur* on p. 340.

GRAPES DISEASED: H. C. The berries are affected with the "spot" disease, *Glœosporium ampelophagum*. Cut out and burn the diseased fruits and spray the healthy bunches with liver of sulphur, using half-an-ounce to one gallon of water. This chemical will turn paint a black colour, therefore be careful of the woodwork in the vinery.

INSECT ON ORCHID: W. B. The specimen you send is a clay-coloured Weevil, and we certainly suspect Weevils are the cause of the injury, for they are amongst the worst of garden pests. Trap them with pieces of some vegetable root, such as Carrot or Potato, and hunt them when it is dark, at which time they feed.

MELON WILT: J. P. The Melon plants appear to be attacked by some species of Anthracnose (*Glœosporium*), but no pustules and no spores are developed, so that it is impossible to identify the species. Syringe the plants with a weak solution of the Bordeaux mixture, having first removed the spotted leaves. It is, however, doubtful whether the affected plants can recover, and they are a danger to healthy plants in their vicinity.

MOSS ON LAWN: T. R. C. Rake off the Moss and apply some nitrogenous manure in order to encourage the growth of the Grasses. The presence of Moss is generally the result of a badly drained turf or a shaded situation. If the subsoil is limestone, you did wrong to apply calcareous matter as a top-dressing.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **PLANTS: J. F.** *Rubus nutkana*.—F. S. 1, *Rubus spectabilis*; 2, *Lonicera tatarica* var. *punicea*; 3, *Erica mediterranea*; 4, *Hydrangea Hortensis* var. *Mariesii*; 5, *Hacquetia Epipactis*.—*Subscriber*. *Corpus mas*, variegated form.—*Interested*. *Pyrus Aria*.—F. E. G. *Akebia quinata*.—L. G. P. 1, *Lycaste aromatica*; 2, L. Deppei.—*Norwood*. (The package arrived without a letter.) 1, *Staphylea colchica*; 2, *Scilla campanulata*.—G. T. W. 1, *Odontoglossum triumphans*, not a good variety; 2, O. *Hunnewellianum*; 3, O. *Pescatorei* (nobile).—A. K. 1, *Cypripedium villosum*; 2, *Odontoglossum citrosum*; 3, *Rivinia humilis* (Rouge plant); 4, *Celsia cretica*.—C. B. G. 1, *Orchis Morio*; 2, *Gymnadenia conopsea*.—U. N. A. 1, *Tainia barbata*; 2, *Pholidota chinensis*; 3, *Cœlogyne ochracea*; 4, C. *odoratissima*; 5, *Pholidota imbricata*; 6, *Dendrobium dixanthum*.—J. E. S. *Epidendrum osmianthum* syn. *E. Capartianum*.—J. F. *Rose L'Idéale*.—J. S.

1, *Billbergia Regina*; 2, *Mamillaria* sp.; 3, *Cereus speciosissimus*; 4, *Mamillaria tenuis*.—E. F. 1, *Stauntonia hexaphylla*; 2, *Olearia stellulata*; 3, *Ceanothus azureus*; 4, *Polemonium cœruleum* (fine variety); 5, *Helianthemum vulgare* var.; 6, *Silene pendula*.—*Aramd*. 1, *Primula mollis*; 2, *Asparagus Sprengeri*; 3, *Akebia quinata*.—A. M. 2, *Geitonoplesium cymosum*, a native of Australia.—E. W. 1, *Kerria japonica* double variety; 2, *Lonicera tatarica*; 3, *Phlox subulata* var. *Vivia*.—A. B. 1, *Phlox canadensis*; 2, *Jasminum Sambac*.—A. B. C. *Crassula hybrid* (*Coccinea* x *jasmimoides*).—J. McG. 1, *Cyrtomium falcatum*, badly infested with thrips; 2, *Gymnogramma japonica variegata*.—H. P. A show *Pelargonium*, perhaps Emperor of India.—*Cov*. 1, *Kerria japonica*; 2, *Gaultheria Shallon*; 3, *Ruscus hypophyllum*; 4, *Lonicera japonica aurea reticulata*; 5, *Saxifraga granulata*; 6, *Cardamine pratense*.—P. G. T. 1, *Dendrobium Falconeri*; 2, *Dendrobium clavatum*.—H. A. 1, *Phlox frondosa*; 2, P. *subulata* var. *Nelsoni*; 3, P. G. F. *Wilson* x; 4, P. *subulata* variety; 5, P. s. var. *Vivid*; 6, P. s. var. *The Bride*; 7, P. s. variety; 8, *Saxifraga granulata* double form; 9, *Primula farinosa*; 10, *Gypsophila cerastioides*; 11, *Phlox amœna*; 12, P. *subulata* var. *atropurpurea*; 13, *Phlox stellaris*. You send more than six; a small contribution to the Royal Gardeners' Orphan Fund box would be appropriate.

PANSIES: T. G. The pest injuring the roots of the Pansies is one of the millipedes, *Julus guttatus*, sometimes known also as the "false wireworm." though it has no relation to the true wireworm. These pests are general feeders, for they attack both living and dead vegetable matter, and are often distributed in manure and leaf-mould. They may be collected in numbers by placing pieces of hollowed-out Potatoes or Mangolds just below the surface of the ground near the infected plants. The bait should be examined frequently and the pests removed and destroyed. Soot and water with a very little nitrate of soda added is said to drive them away, though it may be doubted if this application has any other effect than that of stimulating the growth of the plants.

ROSE MILDEW: Constant Reader. The foliage is badly affected with the common Rose mildew. Dust the plants freely with flowers of sulphur, and in the case of those growing in a heated structure, smear some of the sulphur made in the form of a paste upon the water pipes when they are in a heated condition.

SOIL FROM GREEN: F. W. G. The soil has all the appearance of having been over-fed with strong nitrogenous manures. It has a fungus-like smell and is permeated with mycelium growth. There is a small proportion of lime present, but not enough for this character of soil; a dressing should be given of say—1 ton per acre of lime ground finely (not slacked) which can be purchased in bags. The lime, however, must not be received until you are ready to sow it, for if stored it will burst the bags. Let the lime be sown broadcast in the autumn or early in winter as soon as you can spare the ground from play, because it cannot be afterwards used until the lime has been well washed in. If you cannot spare all the ground at once, treat portions only at one time. The cinders have had nothing to do with the failure of the grass. Applications of sand are not required, but some finely-sifted mould to which may be added a quantity of decomposed horse-droppings would be beneficial. The mould and horse-droppings should be applied after the lime has been washed in. Early in the spring of next year sow some fresh grass seeds on the bare places.

VINE LEAVES: F. W. J. The warty excrescences on your vine leaves are the result of a too close and moisture-saturated atmosphere in the vinery.

COMMUNICATIONS RECEIVED.—J. W. F. R.—J. G.—J. M.—J. R.—G. P.—Mrs. R.—B. L.—A. G.—L. B.—S. T. & Co.—H. W. W.—G. H.—Rev. H.—F. B.—H. H. S.—S. W. F.—D. R. W.—W. B. Colehill—A. J. H.—W. I.—J. D. G.—G. K.—A. & B., Ltd.—J. C.—J. J. D.—J. W. D.—J. McG.—J. S.—H. W.—D. & Sons—J. O.—Upsala—S. A.—S. L.—J. U.—H. W. J. S.—W. & Son—J. R.—G. W.—W. G. G.—F. E. S. & Co.—E. B.—F. M.—C. J.—J. M.—A. E. G.—W. R. P.

For Market Reports see page 2.



THE Gardeners' Chronicle

No. 1,067.—SATURDAY, June 8, 1907.

CONTENTS.

Ansellia gigantea ...	362	Obituary—	
Arundo Donax ...	364	Brandis, Sir Dietrich.	376
Asparagus, an exhibi-		Lane, F. Q. ...	376
tion of ...	370	Masters, Dr. M. T. ...	368
Berberis, the ...	374	Plants, drying and pre-	
Books, notices of—		serving ...	372
Botanical Magazine ...	370	Plant notes ...	368
Perpetual Flowering		Poisonous plants ...	374
Carnations ...	370	Primrose, a fleshy ...	372
The Unheated Green-		Pruning of fruit-tre	
house ...	366	the ...	378
Cabbage Lettuce Mai-		Rhododendrons, hardy	374
könig ...	370	Root-rot fungus ...	361
Camellias in the open		Rose culture in America	371
Carbon supply of plants,		R.H.S. Committees'	
the ...	374	outing ...	370
Carnations, a pest of ...	371	Slugs ...	373
Enkianthus, the genus		Societies—	
Gardeners at Kew ...	371	Bath and West and	
Hydrangeas in tubs ...	374	Southern Counties	375
Kew ...	370	British Gardeners' ...	375
Kew notes—		Manchester and N. of	
The Alpine garden ...	365	England Orchid ...	375
Lathom House gardens		Strawberry Royal Sove-	
Lilies and their charac-		reign ...	373
teristics ...	361	Trees and Shrubs ...	366
McIntyre, M., retire-		Watsonia Ardernei ...	373
ment of ...	371	Week's work, the—	
National Chrysanthem-		Fruits under glass ...	366
um Society's outing		Hardy fruit garden ...	366
New York, proposed		Kitchen garden, the ...	367
plant conference at ...	370	Orchid houses, the ...	367
Nursery notes—		Parks and gardens ...	367
R. Veitch & Sons ...	363	Plants under glass ...	367

ILLUSTRATIONS.

Ansellia gigantea ...	362
Executive Committee of the International Horticultural	
Exhibition of 1906 (Supplementary Illustration)	
Gloxinias, a group of ...	364
The late Dr. Maxwell Tylden Masters (Supplementary	
Illustration)	
Orchids, a group of, at the Temple Show ...	372
Schizanthus, a strain of ...	365
Thielavia basicola, a fungus causing root-rot ...	361

ROOT-ROT FUNGUS.

ATTENTION is now being directed in the United States to a disease which attacks indiscriminately a great variety of cultivated plants. It was first observed in this country by Berkeley and Broome in 1850, as attacking the stems of Peas, and also plants of *Nemophila*. Then it was described and named *Torula basicola* (B. and Br.), under which name it appears in *Cooke's Handbook* (p. 477). The fungus is described as black, and effused, the creeping threads here and there rising from the general mass, and giving off fascicles of short fertile branches, consisting of from five to seven joints, which at length separate as conidia; since which time it has apparently not been observed as a pest in the United Kingdom. In 1876 it was recorded in Germany, on the roots of a species of *Senecio*, and later, on a number of leguminous plants. Subsequently it occurred in the United States on the roots of Violets, threatening them seriously in 1891; but in 1906 it was found inflicting serious injury in the Tobacco beds of the Connecticut Valley, hav-

ing already proved a serious pest in Cuba, soon spreading to an alarming extent over the Tobacco districts of America. So far as present information extends, it has been found on *Nemophila* and Peas in England; on *Aralia*, and *Begonia*, in Ohio and Germany; on *Horseradish* in Russia; on *Cyclamen* in Germany, as well as on Lupins; on Tobacco in Italy and United States, as well as Cuba; on *Onobrychis* in Germany, as well as *Trigonella*; on *Senecio* in Germany, and on *Viola odorata* in North America.

At first it was regarded as simply a saprophyte, like so many of its congeners. Zopf considered it a true parasite, but Sorauer concluded that it had a saprophytic as well as a parasitic existence, since he found it on leaf moulds, and stated that it might occur on soil, at times, without doing injury to the roots of plants. Sorauer and Aderhold agree that it becomes an aggressive parasite, under certain favourable conditions.

Later investigations have resulted in the removal of this fungus from the genus *Torula*, so that now it is called *Thielavia*

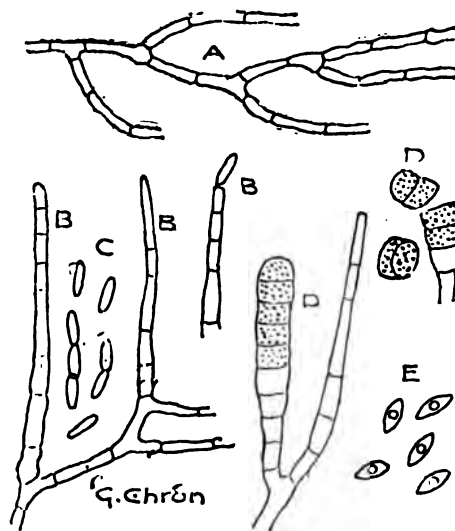


FIG. 153.—ROOT-ROT FUNGUS: *THIELAVIA BASICOLA*.

A mycelium; B, endosporous threads; C, endospores; D, chlamydospores; E, ascospores.

basicola, having previously been described as *Helminthosporium fragile* in 1876, and as *Cladosporium fragile* in 1886.

The vegetative portion of the fungus consists of hyaline, septate, branched threads (fig. 153, a), which penetrate the tissues of the host plants. The external portion of this mycelium soon becomes slightly tinted, and eventually gives rise to three kinds of reproductive bodies, with suggestions of a fourth kind, or spermatia, but this latter is still doubtful.

I.—Endospores formed in a special thread of the mycelium (fig. 153, b). The endospore case is terminal on the threads of the mycelium, with a slightly swollen base, several short basal cells, and a long, tapering terminal cell. The endospores are gradually formed in the apex of this terminal cell, and are pushed out at the ruptured end. These are hyaline, thin-walled, oblong, or linear, and vary in size from 10 to 25 mm. in length and 4 to 5 mm. in breadth (fig. 153, c).

II.—Chlamydospores are thicker-walled, dark reddish-brown bodies, which rarely germinate at once, but are of the nature of

resting spores, and are adapted for carrying the fungus over unfavourable periods. They are borne on the same mycelium as the endospores, and often as side branches. They may be considered as compound spores, consisting of one, two or three sterile basal cells, and from one to seven fertile cells. The basal cells are hyaline or slightly tinted, while the fertile cells are dark reddish-brown, thick-walled, and ultimately separating into flattened individual cells. As a whole, the compound spores are oblong, with the terminal cell rounded, the sterile basal cells tapering downwards. The length of these compound spores, without the sterile base, is from 20 to 50 mm. and their width from 10 to 15 mm. (fig. 153, d).

III.—Ascospores.—These are dark-coloured, single-celled, lenticular spores, about 12 by 5 mm. and are produced in asci or hyaline sacs. Each ascus contains eight ascospores, and, in turn, these asci are enclosed in a spherical receptacle called the perithecium. The perithecia and asci appear to be very fragile and temporary, so that the ascospores may be found towards the end of the season commonly shed out on the older Tobacco roots (fig. 153, e).

The root-rot fungus, as studied in connection with Tobacco crops, develops almost entirely underground, attacking the roots and the underground part of the stem. The tap root, prominent in young plants, is often rotted off close to the stem, or there is a general rotting of the tap and secondary roots.

According to observation, a very weak strength of formalin (about 1 to 1,500) sprinkled several times on the plants in the infected beds did not give very favourable results.

I am indebted for most of the details of this communication to the report of the Connecticut Agricultural Experiment Station for 1906, part V., which concludes with an enumeration of the literature, amounting to twenty-four separate articles, and communications, on this special pest. M. C. Cooke.

LILIES AND THEIR CHARACTERISTICS.

THE variable conditions which have prevailed during the past spring, however adversely they have affected other plants, seem to have been extremely favourable to the growth of Oriental and Occidental Lilies. There is nothing more interesting in the practise of horticulture than to watch the development of such invaluable introductions as these Lilies, which have come to us from the remote regions of the East and of the West. Not even the much-prized *Magnolias* of America and Japan (of which the loveliest, *M. Watsoni*, flowers exquisitely here), have proved of greater value for border and shrubbery ornamentation. This affirmation is especially expressive of *Lilium auratum*, of which the older forms are assuredly the best for decorative purposes, for, such varieties as *L. auratum platyphyllum*, however impressive in the dimensions of their flowers, are lacking in those charming chocolate spots which constitute half the beauty of this justly celebrated Lily of Japan. Perhaps the finest of all the forms of *L. auratum*—at least, in

the direction of picturesque colouring—is *Lilium auratum rubro-vittatum*, which can easily be recognised even from a long distance, by reason of its radiant loveliness. It is, however, according to my experience, exceedingly evanescent, having been in my own garden "a dream of beauty" too bright to last. It would almost require to be treated as an annual, and planted every year, if grown in a cold and adhesive soil. I used to imagine that *Lilium Washingtonianum* was reliable, but after flowering gracefully for a few years in my garden, it has entirely died out, the cold rains of winter and of early spring having ultimately proved too much for its tender constitution. This is one of the loveliest of American Lilies; it is a native of

ing year. I had, I confess, some difficulty at first with *Lilium pardalinum*, but after the second season of planting it rapidly developed and redeemed its reputation. Its finest derivative, *Lilium* × *Burbankii*, multiplies its bulbs with astonishing profusion, and flowers well.

I have never seen the fairest of Levantine Lilies—*Lilium candidum*—to greater advantage than in Logan Gardens in this picturesque parish, where, grown extensively amongst pink and crimson Roses, it has a memorably artistic effect. *Lilium giganteum*, cultivated in richly fertilised borders, is also very successful in these gardens, and frequently reaches a height of more than 10 feet before displaying its great masses of ivory-white, violet-streaked, intensely frag-

ANSELLIA GIGANTEA.

We are again indebted to Sir Chas. W. Strickland, Bart., for a photograph of an interesting Orchid, and from which the accompanying illustration of *Ansellia gigantea* was prepared. It represents a specimen that flowered in the gardens of A. J. Cholmondley, Esq., at Newton, near Malton, Yorks., who originally brought the plant from the neighbourhood of the Crocodile River, Africa. The plant developed 13 spikes of flowers, each spike being about one foot in length, and carrying from 45 to 50 blooms of a pale yellow colour spotted with red-brown.

Ansellia africana, which is taller than the species here illustrated, is the oldest and best-known in gardens, and in consequence of the general resemblance of the different members



FIG. 154.—ANSELLIA GIGANTEA: COLOUR OF FLOWERS PALE YELLOW, SPOTTED WITH BROWN.

California. The refined, white flower is faintly suffused with spots of pink, and it exhales a most fascinating fragrance, reminding one of the odour of the honeysuckle.

Among the noblest of all Lilies, and, when firmly established, one of the most reliable, is *Lilium monadelphum Szovitzianum*, which here attains to almost unique dimensions. This is an Eastern species, which is easily distinguished, not only by its unusual strength and stature, but also by its perfectly formed and charming lemon coloured flowers. The long buds, before expansion, are supremely beautiful. *Lilium pardalinum*—the Californian Panther Lily—while not quite so attractive, is highly distinctive, and though it is some years before it becomes well established, unless grown in a fibrous, peaty soil, it eventually succeeds, and afterwards increases in vigour each succeed-

rant flowers. It is to be regretted that this great Indian Lily requires so many years for the development of its bulbous offsets, for this is doubtless the reason why its planting is restricted. *David R. Williamson.*

VEGETABLES.

CARTER'S FORCING PEA.

I SOWED seeds of this Pea in the third week in February, in 7½-inch pots in a compost of loam, and manure from a spent Mushroom-bed, planting five or six Peas in each pot. I put them in the Peach-house, which had no artificial heat, and was able to pick nice-sized Peas on May 7. The height of the plants is only about 15 inches, therefore if a few twigs are placed to them whilst growing, these are all the support they require. *T. W. Birkinshaw, Hatley Park Gardens, Sandy, Beds.*

of the genus they are often found bearing that name in gardens.

But even for garden purposes the genus gives great variety and beauty, *A. africana*, *A. confusa*, and others which inhabit the Western African region being well separated from the more eastern *A. gigantea*, which, as it spreads to Natal and other cooler situations, in itself gives great variety, the almost wholly yellow form being so different in colour from the type as to cause the name *Ansellia lutea* to be given to it.

The Ansellias are easy to cultivate in a warm greenhouse or plant stove. They require an abundance of water during their actively growing period, and it much prolongs the duration of the flowers if they are removed to a warm, airy conservatory at the time the plants are in bloom. After flowering, a restricted supply of water should be given until growth commences again. *J. O'B.*

THE GENUS ENKIANTHUS.

(Concluded from page 344.)

E. CHINENSIS.—A much branched bush or small tree, 2-6 metres high. Leaves shortly stalked, very variable in size and form, but usually elliptic or obovate-elliptic, narrowed to the base and apex, serrulate; always glabrous and pale-green below. Flowers in pendulous, thyrsoid, or sub-umbellate racemes 6-7 cent. long. Pedicels 1½-2 cent. long, slender, glabrous. Corolla widely campanulate, yellowish-orange striped with red; corolla-lobes variable in size and form, usually dark red, sometimes slightly reflexed. Fruit similar to that of *E. himalaicus*.

This species is possibly nothing but a geographical form of *E. himalaicus*, but its entirely glabrous leaves and pedicels readily distinguish it. As a rule, the flowers of *E. chinensis* are larger, more deeply cleft, the style longer, the stamens, ovary, and style very much less setulose than in those of *E. himalaicus*; but all these characters vary, and the only constant one is the entirely glabrous leaves and pedicels. The leaves in both species vary in size, form, and degree of serrature.

E. CHINENSIS was first discovered near Tali, in Yunnan, by Delavay, Henry subsequently collected it in Hupeh, and Père Farges in North-east Szechuan. In my wanderings in Hupeh I met with it very frequently in precipitous places from 5,000 to 7,500 feet, but not once did I see it in West Szechuan. As far as my observations go it is to Hupeh what *E. himalaicus* is to West Szechuan. It is equally beautiful when in flower, and its autumn tints are similarly brilliant. Plants were raised in Messrs. Veitch's Coombe Wood Nursery from seeds collected in Hupeh.

E. brachyphyllus is described as differing from *E. chinensis* in having sub-orbicular or rhomboid leaves, erect corolla-lobes and rose-coloured flowers with no red striæ. These distinctions, in view of the variable character of *E. chinensis*, are too slight to separate the species. The late M. Franchet founded his *E. brachyphyllus* on specimens collected by Père Delavay at Outchay, a village midway between Ta-kuan and Chau Tung on the main road from Sui-fu to Yunnan-fu.

E. ROSTHORNII is described as a provisional species standing between *E. chinensis* and *E. brachyphyllus*, with broadly elliptic leaves, which in serrature approximate to those of *E. campanulatus*. Dr. Diels founded this species on a barren leafy shoot collected in September by Baron von Rosthorn, near Nan Chuan, in South Szechuan. Whilst I have seen no specimen of *E. chinensis* with serratures exactly as described for *E. Rosthornii*, I have no doubt but that it is merely a form of this variable species.

B. CHINENSIS, Franchet in Morot *Journ. de Bot.* ix. (1895) p. 371.

E. himalaicus var *chinensis*, Diels in *Engler's Jahrb.* xxix., p. 503.

E. brachyphyllus, Franchet, l. c.

E. Rosthornii, Diels l. c. p. 509.

E. PAUCIFLORUS, E. H. Wilson, sp. nov. Bush 1-3 metres, much branched; bark dark brown, winged, peeling off in the third and fourth year. Leaves clustered at the ends of shoots, petioled; blade elliptic or obovate, usually narrowed to base 1½-3½ cent. long, 6-15 mm. broad, rounded or obtuse, mucronate, finely serrulate, teeth mucronulate, glabrous, primary and secondary veins brown, prominent, puberulous; petioles 2-5 mm. long, winged in upper part; slightly pubescent. Flowers yellow with few red striæ, solitary or very rarely in pairs; peduncles flattened, recurved, 1 cent. long, slightly hairy; calyx lobes 1-1½ mm., ovate, acute; corolla globularly campanulate, 8-10 mm. broad, somewhat puberulous on both surfaces; lobes short, usually reflexed; stamens half the length of the corolla; filaments 2-2½ mm. long, dilated at base; anthers 1 mm., horns as long as anthers, divaricate and somewhat recurved, very sparsely setulose; ovary dark coloured, sub-glo-

bose; style 1 cent. long, glabrous or very finely puberulous; stigma simple. Fruit immature but apparently similar to that of *E. himalaicus*, only smaller.

W. China, Prov. Szechuan, Mt. Wa., 10,000-11,000 feet, Wilson, 8,913 f.

A very neat species allied to *E. himalaicus*, but readily distinguished from it. The unflowered character is seldom departed from, but two flowers do occasionally arise from the same axis. Native of humus-clad cliffs on the upper part of Mt. Wa. Not in cultivation, and as a garden plant the least valuable of the family.

E. SUBSESSILIS. A much branched shrub, 1-3 metres high, with reddish bark, young shoots hairy. Leaves, shortly stalked, membranous, obovate-elliptic, 2½-3 cent. long, 1-1½ cent. broad, crenulate-serrulate, with a few scattered hairs on both surfaces but more numerous below; petioles hairy. Flowers white in pendulous racemes, 4-5 cent. long; pedicels straight, filiform, 1½-2 cent. long. Calyx-lobes ovate-acuminate, ciliate. Corolla urceolate, about 5 mm. long and broad, lobes short, reflexed. Style very slightly exserted. Fruit globose, 2-2½ mm. long, ribbed, pendulous.

This is one of the least ornamental of the genus; the flowers are small and "the foliage assumes a brilliant red colour in the autumn." In cultivation in the Arnold Arboretum, where it was raised from seeds collected in 1892, in Japan, by Prof. Sargent. It is also in cultivation with M. Maurice L. de Vilmorin, at Les Barres.

E. SUBSESSILIS.—Makino, in Tokyo, *Bot. Mag.* viii. (1894), 215. Sargent, *Trees and Shrubs*, part 1, p. 49, fig. xxv.

Enkianthus nikoensis Makino, l. c.

Andromeda subseussilis. Miq., *Ann. Mus. Lugd. Bot.* i., p. 32 (1863-64).

Andromeda nikoensis, Maxim. *Bull. Acad. Sci.*, St. Petersburg, xxxi., p. 496 (1888).

E. NIPPONICUS.—This species is not represented in the Kew Herbarium, and is probably not in cultivation in this country. Palibini (l. c.) describes it as a small twiggy bush, with the corolla twice the length of the calyx, and the anthers and filaments equal in length. The corolla is campanulate and sharply toothed, as in *E. Meisteria*, indeed, it is very possible that *E. nipponicus* is merely a form of this species.

E. nipponicus is native of the island of Nippon, in the province of Ise, near Kamino-Yama at 5,000 ft.

E. nipponicus, Palib. in *Rev. Gen. Enkianthus*, ii.—Japan.

E. MEISTERIA.—A much branched shrub 2-3 metres high, with obovate leaves, including petioles, 1-4 cent. long, ½-2 cent. broad, reddish hairy below. Flowers in pendulous racemes. Corolla campanulate, 4-7 mm. long and broad, fringed, with acuminate teeth. Fruits similar to, but smaller than, those of *E. campanulatus*.

In the type the flowers are white, but there is a variety, *rubens*, in which the flowers are reddish. This species is in cultivation at Kew under the name of *E. cernuus*, and as such it is recorded in the *Kew Hand-list* of trees and shrubs. Benth and Hooker are cited as authorities for the name, but there is some mistake about this, since these authors never made the combination. The fringed corolla neatly distinguishes this species from all others save *E. nipponicus*. *E. Meisteria* is native of Japan, being apparently rather widely spread, and is known by the vernacular name of "Biniaodan." It is a neat and very pretty species, well worth growing. The variety *rubens* is even better than the type.

E. MEISTERIA.—Maximowicz in *Melanges Biolog.* v. xii., p. 741.

E. cernuus, Benth. & Hook. f. ex., *Kew Handlist, Trees and Shrubs*, 2nd ed.

Andromeda cernua, Miq. in *Ann. Mus. Bot., Lugd. Bot.*, i., 31.

Meisteria cernua, Sieb. & Zucc. in *Abh. Akad. Moench*, iv., iii. (1846), p. 127, T. I. *E. H. Wilson*.

NURSERY NOTES.

ORNAMENTAL AND USEFUL PLANTS AT EXETER.

THAT part of Messrs. R. Veitch and Sons' Exeter nurseries known as the Hoopern Nursery is now being built upon, and a pretty spot is thus lost to the town. A public path ran through it, and it was, to quote a paragraph from a local newspaper, "one of Exeter's greatest charms and most popular walks, being always well-kept and containing many beautiful specimens of the flora of this and other countries." A special feature of this part of the nursery was the large collection of trees of the genera *Prunus* and *Pyrus*; some of these have been removed to the Cleve Nursery at Exwick, and others to the Retreat Nursery at Exminster.

The Royal Nursery, a few minutes' walk from the London and South-Western Railway Station, still remains the depot for all kinds of stove, greenhouse, and herbaceous subjects. The plants seen in late April included a fine batch of *Dimorphotheca Ecklonis*; *Arctotis revoluta*, with its freely-produced orange-yellow flowers; and *Myosotidium nobile*, the Chatham Island Forget-Me-Not, bearing large racemes of blue and white flowers above its glossy leaves. Amongst shrubs suitable for outdoor culture in the south-west of England or in Ireland were seen healthy plants of *Tricuspidaria lanceolata* and *T. dependens*; *Othra japonica*, a white-flowered species; and *Mimulus [Diplacus] glutinosus coccineus*, a plant having deep, red-coloured flowers, and which has proved hardy in Devon and Cornwall.

Amongst economic plants seen were *Quillaja Saponaria* (Chili soap bark), *Ipomœa purga* (common Jalap), and *Fabiana imbricata* (the Piche of Chili). This last-named plant was first brought to notice in 1886 as a remedy in lumbago, sciatica, and rheumatic affections. Though the plant belongs to the Solonaceæ, its heath-like habit and white flowers give it quite the appearance of a species of *Erica*. *Eucommia ulmoides* is another interesting plant, the bark of which is laden with rubber, which can be readily drawn out in fine silk threads by breaking the bark across. It is a native of China. *Illicium religiosum* is a Japanese tree, and is closely allied to the Star Anise of commerce. *Leucadendron argenteum*, well known as the Cape Silver Tree; *Cassia marylandica* (North American Senna); *Drimys Winteri* (Winter's Bark); *Punica Granatum* (Pomegranate); *Spigelia marilandica* (the Indian Pink Root of North America); and *Sanguinaria canadensis* (the Bloodroot or Puccoon of North America) were also noticed. *J. R. J., Lympstone*.

PLANT NOTES.

RHODODENDRON × SESTERIANUM.

ALTHOUGH this hybrid is usually classed as a greenhouse subject, it thrives admirably out of doors in these gardens, and I send you a few flower trusses with these notes. The tree is planted close to a high wall and in a fairly sheltered corner, with a good rooting medium of peat. The flowers remind one of the variety Lady Alice Fitzwilliam, being creamy white and having a very sweet perfume. The foliage is rather small and dark green in colour. Growing in the position mentioned, the plant has a somewhat straggling habit, but a few stakes suffice to keep it symmetrical. The flowers usually open about the end of May, and thus they escape late spring frosts.

SPIRÆA ARGUTA.

Few plants are more handsome at this time of year than this shrubby *Spiræa*, for its long pendulous shoots are now prettily wreathed with flowers of the purest whiteness. One plant in these gardens opens its flowers quite early in April, and the only difference that can be

noted is that it is not quite so robust as others of the same species. Doubtless this shrub can be rooted by inserting cuttings in early autumn, but the best and quickest method of propagation is by layering the bottom branches, which quickly form roots and soon make good plants. When the flowers have faded most of the old growths should be cut out, some quite to the base, after which robust shoots will appear, and these will furnish flowers next year.

REHMANNIA ANGULATA.

This plant has stood out-of-doors the past winter here, and is now (May 25) well in flower. It is planted at the foot of a south wall, against the other side of which is a powerful tubular boiler, which accounts, no doubt, for the plant having survived the rather severe winter. For neighbours it has the old *Jacoea Lily*, *Sprekelia* [*Amaryllis*] *formosissima*, which is now pushing up its flower-spikes, and *Agapanthus umbellatus*, but the foliage of the last-named plant has somewhat suffered from the cold of winter. *Rehmannia angulata* is a useful subject for the greenhouse. The indoor plants were wintered in cold frames, and were plunged in ashes with a layer of sifted leafsoil spread over the surface of the pots.

CYTISUS ALBUS.

This white-flowered Broom has long, wiry shoots that are laden with bloom early in June. It grows well and flowers abundantly here among a bank of old Laurels. This plant resents much pruning when it has reached a good size, and it is not a long-lived subject, but, being readily raised from seeds sown as soon as they are ripe, there is no difficulty in maintaining a stock. Pot the seedlings when they are large enough and place them under glass, where cool treatment is afforded. Shift them later into 5-inch pots, and stand them in the open until October, when they can be planted in their permanent quarters. A spadeful or two of rich loam and leafsoil will be helpful to them if applied at the time of planting. Nothing further is necessary except supplies of water during dry weather. *J. Mayne, Bilton Gardens, East Devon.*

ARUNDO DONAX (THE GREAT REED) AND ITS FORMS.

It is remarkable in what a number of ways one can use the Great Reed and in every instance find the association a happy one. This is another way, perhaps, of saying that it will grace any position that may be assigned to it, and whilst this is an undoubted fact, the plant requires from the cultivator the best attention he can afford it, from the landscape gardener his best skill in finding for it a position worthy of its grace, and from the owner of the garden some such measure of protection as he is accustomed to afford to trees, shrubs, and herbs destined to form permanent features in the landscape. It is not the plant for a planter in a hurry, for it will probably take several years to reach its maximum height, and at least ten years to develop into massive clumps possessed of an inimitable beauty and a stately grandeur rivalled only by the best of the Bamboos. By an unwritten law which everyone recognises, but which no one strictly observes, the *Arundo* should be isolated, not as individuals, but as a group from other groups. The ideal "setting" is that afforded by a carpet of grass or low herbs that admits of every erect stem and gracefully recurved leaf being seen at its best. Its own rigid yet graceful outlines forbid a muddle at its base, and it requires no help from other plants save from those modelled on its own stately scale, and these other groups should be widely separated from it and each other.

Itself an old-time plant, it accords well with old-time surroundings, and is peculiarly fitted for association with garden architecture, as "sentinel" groups guarding a massive garden gateway and as a corner group to destroy the

too acute angle of a walled-in enclosure. The outlines of the plant being a study in straight lines and curves, it serves a useful purpose in blending with an English landscape garden designs from warmer climes, notably those of the Italian school. Here are the straight canals, straight paths, straight balustrading, straight pergolas, straight beds, &c., &c., that accord so well with Italian roofs and terraces, but which need some modifying influence to blend them with English mansions and their environment. This influence the *Arundo* provides in a surprising measure, and its intervention carries the eye from the straight lines to free grouping without abrupt transition.

It has unlimited value in the garden landscape also. It is an excellent subject for bold grouping by the waterside, for planting in the open glade, in the Bamboo garden, or wherever there is moisture, a good soil, and particularly where there is abrupt transition from the formal garden to the informal. The type plant of the Mediter-

the leafage is produced in similar proportion. It proves to be quite as hardy as the older type *Donax*, but whether it will reach 14 feet in height or surpass it I have no knowledge. It has formed clumps of from six to eight stems each, and the stems are from 6 to 7 feet high, from tiny scraps planted three seasons ago: the current year's shoots are remarkably vigorous.

A form of *A. Donax* named *variegata* is quite different. It is a comparative weakling, and the least that is said about it in connection with garden landscape the better. It is wholly incapable of withstanding ordinary winters unharmed, but for the greenhouse, the cool conservatory, and for water-gardens under glass it is a splendid subject. This variegated form does not exceed 6 feet in height, and is inclined to branch too freely at the base: in every respect, however, it is the best of all variegated grasses, and the finest coloured. *Pandanus Veitchii* cannot surpass in beauty a well-filled pot of *Arundo Donax variegata*.

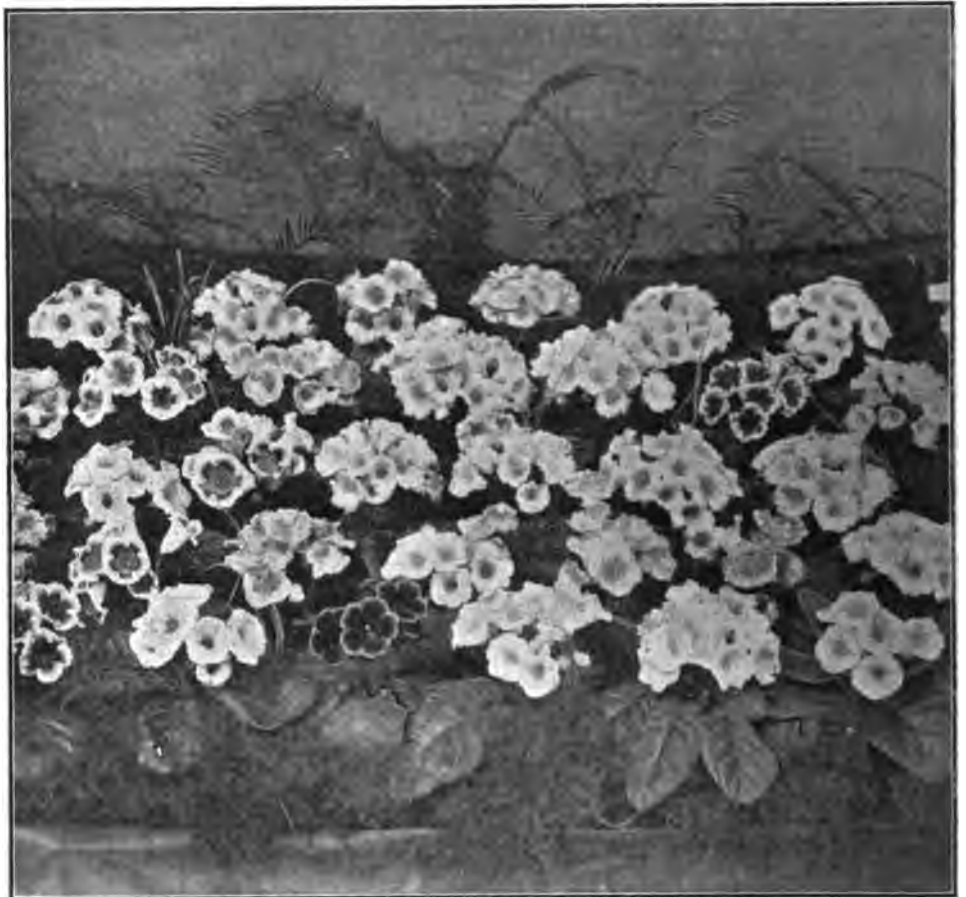


FIG. 155.—SOME OF THE GLOXINIAS EXHIBITED AT THE RECENT TEMPLE SHOW BY MESSRS. J. FEED AND SONS.

ranean reaches a height of from 12 to 14 feet in this country. It must have the best of culture, however, or a maximum of 10 feet is all that can be expected; shelter is necessary from violent winds, and the plant must be cut down to the ground level every April in order that the young grass may grow away unhindered. This annual pruning maintains the plant in vigour for a great length of time.

If the old growths are left, the young shoots live as competitors; numbers of off-shoots from the old stems and much of the plant's vigour thus goes in undesirable channels.

A new variety, with which I have been acquainted for about four years, promises well. It is named *macrophylla glauca*, and the name describes it well. The growths are stouter than those of the typical *Donax*, and, in addition, the stems and leaves are very glaucous, but grandly effective. There is a denser vegetation also, and for every single shoot a *Donax* sends up the variety *macrophylla glauca* sends up three, and

The planting of these grasses should be performed in April when the soil is thoroughly warmed. The roots start within a week of planting, and suffer no check thenceforward. A cartload of good loam is a necessity for every plant destined to live undisturbed for many years, aided by an annual mulch of cow manure every spring after the old stems are cut away.

Propagation, other than that by root division, is possible in good warm seasons such as 1906, by cutting the stems, when removed in the following April, into foot lengths, leaving a node or two on each piece, and sticking them in sand in a tub three-parts filled with water. Place the tub in a warm greenhouse; shoots will issue from every piece of stem that is fresh and green within a month or two of severance; these should be raised to high-water level till roots are emitted. The severance of the new plants from the old stem and their establishment in pots is the final treatment in their propagation by cuttings. *G. B. Mallett.*

KEW NOTES.

ALPINE GARDEN.

EREMOSTACHYS SUPERBA.—Although the genus *Eremostachys* consists of some 27 or more species, all natives of Western and Central Asia, the only one well known in gardens is *E. laciniata* from Asia Minor. This handsome species has been in cultivation since the year 1731, and is quite an attractive plant, its woolly spikes bearing pleasing purple and brown-coloured flowers. *E. superba*, a species having deep-primrose-coloured flowers, and a native of the Western Himalayas, is a welcome addition to this family. Seeds were received at Kew in 1902 from the Warsaw Botanic Garden, and the plants have flowered there for the first time this year. The pinnatisect leaves are produced in a rosette at the base of a simple stem,

flowers. A good figure of this plant is given in the *Gardeners' Chronicle*, 1897, XXI., p. 182, from a photograph taken in its native habitat on the Cilician Taurus, at an elevation of 5,000 feet, where it grows in open rocky places. It first flowered at Kew in 1896, and the plant was drawn and figured in the *Botanical Magazine*, t. 7,742. The rosette of large handsome leaves of a glaucous hue at their base gives the whole plant a stately appearance. In its native habitat it reaches a height of 7 feet or more.

CONANDRON RAMONDIODES.—Although introduced into cultivation by Messrs. J. Veitch & Sons, Ltd., in 1879, this plant is still rarely seen in gardens. It is now in flower in the Alpine house at Kew, having been accommodated through the winter in a cool house. It has not proved hardy at Kew, and although it will stand the severity of the winter, provided a

two to three flowered, and foliage possessing 12 to 20 leaflets. The flowers are rose coloured, with a purple base, and are freely produced. It first flowered at Kew in 1905, and is figured in the *Botanical Magazine*, t. 8,054. Thriving under the same conditions, both species are now flowering in pans in the Alpine house, after having been grown plunged in ashes in a frame with a northern aspect.

PODOPHYLLUM VERSIPELLE.—In the rock-garden at Kew this recently-introduced Chinese plant is now producing its pendulous chocolate-coloured flowers. The species is a native of China, where it is found in woods and shady situations in Western Hupeh and Eastern Szechuen. *Podophyllum versipelle* is a singular-looking plant, with stems nearly 3 feet in height, dividing into two near the top, each portion bearing a large, lobed, peltate leaf 18 to



FIG. 156.—MESSRS. SUTTON AND SONS' STRAIN OF SCHIZANTHUS.
(From a photograph kindly supplied us at the Temple Show.)

which reaches a height of about one foot, while the flowers are borne in woolly heads 4 to 6 inches in length and 3 to 4 inches broad. Although a dwarf plant, it is a very attractive one: it has proved quite hardy at Kew, and as easy of culture as the older *E. laciniata*.

MICHAUXIA TCHIHATCHEFFÜ.—A fine specimen of this handsome biennial is now in flower at Kew on a warm border facing south. This species may sometimes be had in bloom within 18 months from seed-sowing, but frequently a period of two or three years, or even more, elapses before the flower-stems are produced on seedling plants. The Kew specimen has a stout flowering-stem between 4 and 5 feet in height, with lateral branches from the base upwards, the whole being covered with large white

cold frame be afforded it, the plant is not a success under those conditions. It is a close ally of *Ramondia* and *Haberlea*: the leaves are large and in colour deep green. The inflorescence is an elegant drooping cyme of purplish rose or white flowers with a purple eye. This *Conandron* grows naturally on moist rocks on the mountains of Nippon and Kinsin in Japan, and, when growing, requires plenty of moisture, but not of a stagnant nature. It is figured in the *Gardeners' Chronicle*, 1879, II., p. 232.

OXALIS ADENOPHYLLA.—This Chilean species was collected by Mr. H. J. Elwes, near San Martin, at an elevation of 6,000 feet. It forms an excellent companion to the Falkland Island species, *O. enneaphylla*, but differs from that plant in having a bulb-like rootstock, peduncles

20 inches in diameter. The flowers are produced in bunches of from 12 to 16 just under the leaves, and they are more curious than ornamental. The value of the plant lies in its bold, handsome foliage. It is quite hardy, and grows luxuriantly in strong soil.

PENTSTEMON CŒRULEUS.—One of the earliest of the genus to bloom, this species is also distinct by reason of the charming light blue of its flowers, which are produced in dense panicles. In habit the plant is about 9 inches high, and the narrow leaves are glaucous. Treated as a biennial, it forms a pretty pot subject, besides being useful for planting out in a warm, sheltered part of the rock garden. The plains of Dakota and Montana in the Western United States are its native habitat. W. Z.

TREES AND SHRUBS.

DEAD WOOD ON TREES.

FAR too much dead and dying wood is allowed to remain on our park and woodland trees, the result being a sense of neglect and untidiness, danger from falling branches, and the encouraging of injurious insect pests. By the removal of dead branches cut well back to the living wood, young growths are induced to form and an improved condition of the trees results both in health and in appearance. Travel where one will, the same conditions are seen, and the presence of stag-headed trees and dead or dying side-branches are more often the rule than the exception. On well-managed estates the pruning of ornamental timber trees is regularly attended to, but often on smaller properties, where a forester is not employed, this condition of untidiness prevails. Possibly the cost of removing dead wood from trees is one reason why it is often neglected, but when the health of the tree, its generally improved appearance, and the enhanced value of the property of which it forms a part are considered, the expenses incurred thereby will be more than recompensed.

THE EARTHING-UP OF TREE STEMS.

This is a ruinous practice, and often the cause of unhealthy and dying trees in parks and woodlands. When a quantity of surplus soil has to be disposed of, a site beneath a clump of trees or about the woodland margin is generally chosen as the most convenient and out-of-the-way position where such may be placed. Few persons fully realise the amount of damage that is caused by the indiscriminate placing of soil deeply beneath and around the stems of even large and vigorous-growing trees. When soil has been placed to a depth of, say, from 3 to 4 feet, the trees will usually die out in a year or two, but in our parks and gardens the covering soil has been lighter and the decay is slower. First, the foliage becomes meagre and rusty, next the branch-tips die back, the bark loosens and falls off in flakes, and gradually the whole tree succumbs to what might well be termed root-suffocation.

A light top-dressing of good soil will benefit rather than injure a tree, but it should not be of a greater depth than 4 inches. Where it is imperative that several feet in depth of soil must be added to the woodland, then the only chance of saving the trees is to leave a space about 6 feet in diameter around the stem of each large tree, and on this reserve area little or no top-dressing should be added.

ORNAMENTAL WILLOWS.

Apart altogether from the value of the osier and the timber obtained from these trees, several species are highly ornamental and eminently suited for planting by the stream or lake side. For this purpose the Carter or red-twigged Willow is particularly effective in its extremely dark red branches, as is also the Golden Willow (*S. aurea*), which, for clump planting by the water side in conspicuous positions, has, perhaps, no equal. *S. sanguinea* has clear, shining bark of a rich vermilion colour, which appears beautiful in the setting sun of an autumn day. Another desirable species is *S. regalis*, the Royal Willow, and though introduced fully a century ago, is not half so commonly planted as its merits deserve. The foliage is of an almost unique silvery tint, and it associates well with those of the purple and golden kinds. Among weeping kinds are the desirable and well-known Kilmarnock Willow, the Babylonian Willow, and American Fountain; the last-named was introduced from France about the year 1852. Willows are readily raised from cuttings. They are inexpensive and beautiful, and one wonders why they are not more often planted. A. D. W.

NOTICES OF BOOKS.

THE UNHEATED GREENHOUSE.*

By Mrs. K. L. DAVIDSON.

THIS is a carefully-compiled and charmingly-written book, containing a mass of interesting, useful, and practical matter regarding the selecting and arranging of the most suitable subjects for rendering the unheated greenhouse attractive and engaging during the late autumn, winter, and spring months. The work consists of 248 pages, wherein the advantages attached to an unheated greenhouse are indicated in a clear, interesting, and very readable manner. There are 46 good illustrations. The book is divided into 22 chapters, dealing with the following subjects:—The Advantages of an Unheated Greenhouse; Typical Cold Greenhouse; Some Hints on Construction; Regulation of Temperature; Plants Suitable and Unsuitable; The Alpine House; Foliage Plants for Grouping; Bulbs and Tubers—Hardy Species; Half-Hardy Species; Lilies; Flowering Shrubs; Some Hard-Wooded Plants; Roses; Hardy Perennials for Spring; Autumn Perennials under Glass; Annuals and Biennials; Hardy Orchids; Succulent Plants; The Potting Shed—Summer Quarters; and Routine Work.

The manner in which each subject indicated above is treated shows that the authoress is not only a close observer of all that is interesting and beautiful in plant life, but that she also has a practical knowledge of the requirements and cultural treatment of the plants enumerated. At page 4 an additional plea is urged in favour of the unheated greenhouse, in that it affords an opportunity to the delicate amateur gardener of both sexes to indulge in the pleasure derived from watching and tending to the requirements of plants at a time of the year when it would be unsafe for them to work out-of-doors. "It is no small boon, then, on a dreary winter's day to have a place of shelter, neither too cold nor too hot, and a possible occupation where an hour or two may be safely spent in the company of the plants we love."

The unheated greenhouse may take on occasion the form of a glass corridor, and when this happens to be a lean-to passage-way connecting garden structures, or it may be outlying rooms of a dwelling, it is a place of all others in which to grow specimens of flowering shrubs (page 4) such as *Carpenteria californica*, which succeed best when trained against a wall, and which are all the better for having their root-room restricted by a narrow and not too deep border. The roof may also be embellished with hardy climbers such as *Clematis* and *Jasmines*, *Tea Roses*, &c. *Agapanthus* and *Crinum Moorei* and similar strongly-growing plants would also succeed in the unheated corridor, and should be grown in tubs or in large Italian pottery.

Practical and useful hints are given at pages 15 to 22 on the construction and aspect of glass-houses suitable for the growth of certain kinds of plants named. Glazing, shooting, and underground covered-in cement tanks for the storage of rain-water are all dealt with in a clear and expert manner, as also are such details as the regulation of temperature, ventilation, and shading.

Each of the 98 pages of excellent appendices (in which lists of various kinds of plants suitable for growing in the unheated greenhouse are given) is divided into five longitudinal columns in which, reading from the left are given (1) name, (2) height and colour, (3) native country and season under glass, (4) soil, (5) general remarks.

The book can be recommended with every confidence of its affording pleasure and useful information to all who consult its pages. The paper, type, illustrations, and text are all alike good, and the matter, from the beginning to the end of the book, is not only expressed in a clear and practical manner, but has literary charm in addition. "The Cool Greenhouse" would perhaps be a more appropriate name for the book, seeing that frequent reference is made therein (pages 2 and 5) for the provision of means for preventing the temperature falling below 35°.

* Published by George Newnes, Ltd. (Country Life Library), London; price 8s. 6d.

The Week's Work.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Fruit-trees in Pots.—Apples, Pears, Plums, &c., in pots will now be swelling their fruits, and the latter will require a final thinning, which should be severe in the case of weakly and unhealthy trees. Syringe the foliage both morning and evening when the weather is hot, and give abundance of ventilation to the orchard-house. Afford liberal supplies of water as often as necessary, and liquid manure at the roots twice a week. Support any branches which are fruiting heavily, by means of a strand of bast tied to the main branch. Supply the plants with a rich top-dressing during the time the trees are maturing their crop.

Strawberries.—Batches of these plants, in a late Peach or Orchard house, that are required for late fruiting should be watered twice daily during hot weather, for if the foliage is allowed to flag, it will soon become infested with red spider, and this pest also soon attacks Strawberries on shelves near to the glass at this season. Syringe the plants with hot water each morning, which will greatly assist in warding off mildew and red spider. As soon as the fruits are set, thin the berries to about eight or nine of the best on each plant, and afford a stimulant to the roots once or twice every seven days. Support the trusses of fruit with forked twigs, or, better still, with patent wire stakes; this will keep the fruits clean and prevent the weight of the fruit from bending the stalk over the sides of the pots. Plants that have furnished early supplies of fruits this season should now be sufficiently hardy for planting in the open borders, where they will fruit well next year.

Cucumbers planted in hot-beds must have their shoots regularly pinched and pegged down. Spray the foliage lightly when the frames are closed for the night during the hot weather. Never allow the young shoots to become overcrowded, but remember that Cucumbers planted in hot-beds make gross growths. Do not over-crop the plants. As soon as the heat from the decomposing materials declines, apply a lining of short green grass and stable litter all around the frame. This will enable the plants to continue fruiting for another month. Sow seeds for providing a succession.

Melons which were planted in frames last month should have their flowers pollinated each day. Pinch the young growths, and when three or four fruits are "set" on each plant remove any others as they appear. Thin the young growths when they are too thick to allow plenty of sunlight to reach the fruits. Do not allow the bottom-heat to decline, but, instead, line the frames afresh with grass and leaves mixed together to maintain a steady temperature.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bilton, East Devon.

Gooseberries.—In gathering these fruits those nearest the ground should be selected first. For bottling purposes the fruits should be picked before they are large. Warrington is a good variety for bottling, and the present is a suitable time for thus conserving them. Guard against the Gooseberry caterpillar and keep the ground well stirred beneath the bushes with the flat hoe on every favourable opportunity. Should there be any suckers present, cut them out early, as these rob the top growths of nourishment.

Recently-grafted trees of Apple and Pear need examining, and where union between stock and scion is apparent the clay or wax should be removed, the ligatures loosened so that swelling may be unrestricted, and a small stick or tutor be secured to the stock and the graft tied to prevent injury from birds and wind. A few shoots from the stock may be allowed to remain until the growth of the scion is well advanced. Any of the grafts that are still plump, though dormant, should be syringed several times daily to encourage the buds to burst.

Raspberries.—Established plants usually throw up far more growths than are required for next season. They should be thinned considerably, reserving only the strongest shoots that are nearest the stool. Autumn fruiting varieties should be treated similarly and be given a heavy

mulching of manure. The drainings from the stables or cow stalls may be poured on the roots of these plants at any season of the year; it will help the fruit-crop later on and strengthen the young canes which will furnish next year's fruits.

Apples.—Early varieties that have set heavy crops of fruits should be moderately thinned at first, for if they are thinned again in a few weeks time the fruits will then be serviceable for use in the kitchen. It is a great mistake to allow trees to carry more than a fair crop, especially trained trees. American blight increases fast at this time of the year, and should be combated vigorously, using methylated spirit, Gishurst Compound, or diluted paraffin for its destruction. The grass in orchards should either be eaten off by sheep, or be mown with the scythe, but the stems of young fruit-trees must be protected from sheep or cattle. Mown grass should be placed around the younger trees; it will keep the roots moist and cool, and is especially valuable in the case of sandy or gravelly soils.

Protecting fruits with nets.—Numerous birds in this locality remind one that preparations must soon be made to ward off their persistent attacks on the fruit crops. Do not wait until colouring in the fruits indicates ripening, but make preparations as soon as stoning is finished. Early Strawberries growing on south borders should be netted immediately they pass out of flower. In case the weather should be showery during the Strawberry season, it is advisable to place about three sticks around each plant, and to tie the fruit trusses clear of the litter and foliage, especially of that robust variety Royal Sovereign, whose canopy of foliage completely hides many of the fruits, and hinders the sun from reaching the berries. Where mice abound, traps should be set in the vicinity of the beds.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq.,
Eastwell Park, Kent.

Souvenir de la Malmaison Carnations.—The main batches of these plants are now fast approaching their flowering stage, and it will be necessary to see that the bands by which the flower-stems are tied are not too tightly fastened, otherwise the stalks will snap as growth develops. Remove the lateral flower-buds as early as possible, and also afford the blooms, before they have fully opened, the requisite support. The "Ascott" is one of the best supports for this purpose, and it can be procured in various colours to suit the different varieties. Shade the blooms from strong sunshine, or they will quickly lose their colour. Keep the house cool and well ventilated, and on very hot days, damp occasionally the staging between the pots.

American-tree, or Winter-flowering Carnations.—The term winter-flowering is somewhat misleading, for although in common with many other plants they may be flowered in winter, they probably flower better as the days lengthen and the amount of sunlight increases. Perpetual blooming they certainly are, and this name would appear to be more appropriate for them. A batch of these plants from which flowers were cut in mid-winter have at the present time more flowering-shoots and better blooms than ever, and have every appearance of still continuing to flower for a long period. Plants required for flowering next autumn and winter should now be repotted into their flowering-pots and, if the weather is favourable, be stood outside on a bed of ashes. In more northern localities or in places where the rainfall is heavy, they should be placed where they can be protected from inclement weather. In all cases, when newly potted, they should be protected from continuous heavy rains, and if nothing further can be done in this direction, it will suffice if the pots are placed on their sides for a day or two. Pinch the points out of the shoots, to induce a bushy habit, but do not practise pinching too late in the season. Afford stakes to the plants as required, and syringe them occasionally in the evening with weak soot water; this will help to ward off insect pests and will also stimulate the roots. Remove the plants in September, early or late, according to the locality, but it is better to err in housing the plants indoors too early, rather than to allow them to become saturated with heavy autumnal rains. Late-rooted cuttings should be potted as required,

for on no account must they become pot-bound. This later batch of plants will flower in the winter if their shoots are not pinched too late in the season, but the quantity of bloom will be much smaller from them than in the case of the earlier plants.

THE KITCHEN GARDEN.

By WILLIAM H. HONKSS, Gardener to C. COMBE, Esq.,
Cobham Park, Surrey.

Tomatos may now with safety be planted in the open. Place a good strong stake to each at the time of planting, for if this were done later there would be the danger of damaging the roots. Make the plants firm in the soil, and if they be thoroughly soaked before turning them out of the pots, further waterings may not be necessary for several days. Tomatos planted at the foot of walls a fortnight or more since will now require attention in the matters of watering and tying.

Onions both spring and winter sown, including those that were transplanted, are now making good growth. The former are quite large enough for salads. Any gaps in the rows should be made good by transplanting. In gardens where spring Onions are in demand for salads, periodical sowings should be made throughout the summer. The hoe should be frequently applied between the rows of Onions to keep the soil porous and sweet, and if hoeing is well carried out, very little weeding will be required.

Root Crops.—Parsnips, Carrots, Beet, Turnips, &c., will now require further thinning, and this is better done at intervals and when possible during showery weather. In the case of Carrots apply a sprinkling of soot along the rows immediately after the plants are thinned. This will check the maggot, which is often particularly active after the operation of thinning.

Cardoons.—The present is a suitable time for planting this vegetable in trenches already prepared, as advised in a previous calendar, keeping them well supplied with water. Should the seedlings appear too forward, make another sowing immediately, as very early plants are apt to "bolt."

Gourds and Pumpkins are often used in winter in soups, and in the autumn time they are in demand for harvest festivals. They are also objects of interest when growing up posts or when allowed to ramble over out-houses and trellis work, and there are many curious and pretty varieties. A spent hot-bed that has been used for early Carrots, Lettuce, &c., makes a good rooting medium for these curious plants, provided the surroundings will permit of their rambling at will.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor LAWRENCE,
Bart., Burford, Surrey.

Cypripediums.—Amongst the species of Cypripedium now in flower are the rare *C. Sanderianum* and *C. caudatum*. The former thrives best when placed in a shady corner of the hottest house, while *C. caudatum* prefers the cooler atmosphere of an intermediate house, and a position where it can obtain plenty of fresh air and sunlight. Unfortunately both these Cypripediums are seldom met with in a flourishing condition in gardens. The rare and curious Uropedium *Lindenii* is closely allied to *C. caudatum*, and it should be afforded exactly the same treatment. Other species and hybrids now in bloom in the warm house include *C. superciliale*, *C. Stonei*, *C. barbatum*, *C. Curtisii*, *C. Rothschildianum*, *C. Swanianum*, *C. macrochilum*, *C. Lawrenceanum*, *C. L. Hackbridgensis*, *C. callosum Sanderæ*, &c. After their flowering period is over these plants should be examined at their roots and be afforded more rooting space if necessary after first removing the old flower-scapes. A mixture of rough, fibrous peat, sphagnum-moss, and broken crocks will form a suitable rooting medium for them all. About one third of the depth of the pots should be occupied by drainage material. After repotting, keep the surface of the compost just moist, but afford abundance of water when the plants are re-established, and at all times shade them from bright sunshine. *C. superbians* (Veitchii) flourishes in a shady part of the Cattleya house, and if it is grown in a warmer structure the delicate foliage is liable to become infested with small yellow thrips. All the Cypripediums requiring cool treatment, including *C. insigne*, *C. Leeatum*, *C. villosum*, *C. Boxallii*, *C. Sallieri*

Hyeatum, *C. Euryades*, &c., are now in their full growth and will require copious waterings at their roots whenever the compost appears the least dry.

Cattleya labiata.—Plants that are showing their flower-sheaths should be given plenty of water until their new pseudo-bulbs are fully developed, after which time the amount of moisture at their roots should be considerably reduced, giving only sufficient to prevent the pseudo-bulbs from shrivelling. Immediately the flower-buds are seen pushing through the sheath, the quantity of water must again be increased, but at no time should plants of this useful Cattleya be kept in a saturated condition, and each plant should become properly dry before water is again applied. These remarks apply also to *C. gigas*, *C. Dowiana*, and its variety *aurea*.

Plants of Vanda "Miss Joaquim" which are showing their flower-spikes should be placed near to the glass so as to obtain the maximum amount of light, on the south side of the East Indian house. A similar position in the Cattleya-house will suit the rare *Renanthera Storiei*.

Shade-loving Orchids, such as *Bolles*, *Pescatoreas* and *Warszewiczellas*, should be placed in a damp corner of the Cattleya or intermediate house, and be given a position where they will be protected from all direct sunshine. In addition to the ordinary shading, it is advisable to place a garden mat immediately over them during the hottest hours of the day. They must be kept well sprayed with water overhead all through the summer months, and they will need plenty of water at their roots for several months to come.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Children's playgrounds.—In the majority of public parks, children's playgrounds now occupy an important place. These are somewhat diverse in character, and even in the same town it sometimes happens that they are not all conducted on exactly the same lines. Some may be furnished with swings, see-saws, giant strides, and sandpits, while others may simply be part of the recreation ground that is set aside for the use of small children only. Where a whole acre or more space can be spared for a playground, it is well to have it turfed, and there is then little need for swings and such like amusements. It, however, the space is limited, it had much better be asphalted and provided with the additional means of amusement above indicated. In the latter case it is essential to have a smart able-bodied caretaker always in attendance to keep the children under proper control and to prevent accidents. There seems to be a considerable divergence of opinion among various authorities as to the value of swings and gymnastic apparatus in children's playgrounds. Some, during recent years, have discontinued, while others have extended, their use in playgrounds. In congested areas, where it is impossible to get a large open space for the use of children, swings, &c., supply the only form of amusement that can be adequately provided for them under the circumstances. In the larger spaces there is little need for such adjuncts as these, for the children will furnish their own amusement in games, &c.

Infants' playgrounds.—It may seem somewhat ridiculous to suggest that the addition of an infants' playground might be found exceedingly useful in a public park. Such an institution, however, has been in existence in one of the pleasure gardens in this city for a number of years past, and has proved such a decided success that the idea is about to be extended. The one in question is an isolated lawn about 1½ acres in extent, and is kept regularly mown with a machine, so that the grass is always short. Here the little ones are allowed to amuse themselves, and as no games are permitted in the vicinity there is less danger of these infants getting injured, as sometimes they would in an ordinary children's playground. One has only to visit this park on a fine summer's day and see the infants' portion covered with little ones to realise how greatly it is appreciated by them and their parents. In a crowded city it must be a very great boon for parents to be able to take or send their babies to a place where they are absolutely free from ordinary dangers.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 10—

Unit. Hort. Ben. and Prov. Soc. Com. meet.

TUESDAY, JUNE 11—Roy. Hort. Soc. Coms. meet.

WEDNESDAY, JUNE 12—

Roy. Cornwall Sh. at Liskeard (2 days).

Roy. Bot. Soc. Summer Exhib. (3 days).

THURSDAY, JUNE 13—

Colonial Exhib. at R.H.S. Hall, Westminster (3 days).

SATURDAY, JUNE 15—German Gard. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—58°6'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 5 (6 P.M.): Max. 66°; Min. 54°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 6 (10 A.M.): Bar. 29.6; Temp. 62°; Weather—Bright.

PROVINCES.—Wednesday, June 5 (6 P.M.): Max. 57°; Cornwall; Min. 50°; Scotland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

The beneficial interest in the lease of the Nursery, High Road, Clapham, and afterward the whole of the stock of Palms and Plants. On the premises, by order of the executors of the late G. B. Fischer, by Protheroe & Morris, at 12.

Geraniums, Carnations, Pinks, &c., Palms, Bays, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.

FRIDAY—

Imported and established Orchids in variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

It is our melancholy duty to record the death of Dr. Maxwell **DR. MASTERS.** Tylden Masters, F.R.S., Editor of this journal, who passed quietly away to his rest on the 30th ult. at his residence at Ealing, after an illness extending over a period of one month.

The name and personality of Dr. Masters have so long been associated with the *Gardeners' Chronicle* that our minds may have unconsciously imagined a state of permanence to exist in regard to something in which permanence is impossible. How difficult it is to bring ourselves to write of our revered chief as one who has gone for ever from our midst!

So long ago as forty-one years last November, Dr. Masters first became part editor of the *Gardeners' Chronicle*. Dr. Lindley died on November 1, 1865. His death was briefly announced in the issue for November 4, and in that of November 11 there appeared a short biography of the great botanist, written by Dr. Masters—probably the first article he contributed after his appointment. During all the subsequent years, the influence of the mind, character, and ability of Dr. Masters has been stamped upon these pages. It is not our intention to write at length on the details of the life and published

botanical works of our chief. The loss we have sustained is of far too personal and painful a character. In our next issue another pen will do for our readers this important service, also necessary in the interests of botanical and horticultural science. In the meantime, we recall some of the more important questions upon which, as Editor of this journal, Dr. Masters was led to use his influence either in the guidance of public opinion, or in giving expression to the wishes and thoughts of his readers. He entered on the consideration of all such matters with a mind absolutely free from prejudice of any kind and from all mean or selfish motives. A purist of the most uncompromising kind, his policy was determined by one question, and that alone: Which is right? No thought of mere expediency ever influenced him. The right course was to him the only course. This marked conscientiousness was indeed his chief characteristic, and next to this was his extreme kindness. It is conceivable that those who were less familiar with the leader we now mourn, may have been so impressed with his kindly nature that his other equally excellent qualities were less conspicuous to them. But they were just as real. Those who came into daily association with Dr. Masters could never mistake his kindness for vacillation, or his extreme desire to avoid hurting the feelings or prospects of others, for weakness. Occasions have arisen when his heart would fain have prompted him in one direction, but his judgment and unswerving obedience to the dictates of conscience have obliged him to proceed in another. His sympathies were of the widest description. In every branch of botanical and horticultural science he found occasion to interest himself. His mind was too catholic to allow him to form a partisan appreciation of particular flowers, or even of special forms of gardening. He saw good in everything, and possessed the enviable gift of being able to exhibit that good to others.

His memory for circumstances that happened many years ago was remarkable. Many a time has Dr. Masters referred to the excellent botanical lectures that Dr. Lindley used to deliver in the Physic Garden at Chelsea more than fifty years ago. He always described them as the most interesting scientific lectures he had ever heard.

Dr. Masters has told us of the incidents attending the fight he undertook in the pages of the *Gardeners' Chronicle* on behalf of the interests of good gardening, when a proposal had been made in respect to the management of the Royal Gardens at Kew, which would have placed the care of the plants in the hands of a Government department, instead of in those of the Director. This was probably the longest sustained fight that Dr. Masters ever waged on a political question. He won the day, and events have proved that he was right. Most of the circumstances connected with that somewhat embittered controversy were as fresh in his memory as ever.

Another subject in which he always maintained the liveliest interest was that of the great International Horticultural Exhibition of 1866, of which the late Sir Charles Wentworth Dilke was president. Dr. Masters acted as Congress Secretary for that event, which proved, it may be remembered, so

financially successful that there was a large balance, of which £1,000 was given to the Gardeners' Royal Benevolent Institution, and the remainder applied to the purchase of the Lindley Library. The exhibition has now a melancholy interest for us. For some years past it has been the custom of Dr. Masters to make a special note when death overtook a member of the Committee that was charged with the arrangements for that exhibition. One by one they have passed away. Since the death of Richard Dean, the only two surviving members were Mr. Harry J. Veitch and Dr. Masters. A month or two ago the latter, after drawing our attention to this fact, remarked that copies of the photograph, being exceedingly rare, it would be interesting to publish it as a supplement to the *Gardeners' Chronicle*. The photograph was prepared for publication, and the intention was to have issued it in Temple Show week, with some reminiscences that Dr. Masters alone was in a position to write. Unfortunately, his fatal illness commenced so suddenly the reminiscences were not prepared, and the photograph was put back for use after his hoped-for convalescence. To-day, when we mourn his loss, there appears no reason for further delaying the publication of the photograph. It is, indeed, appropriate to a number relating the entering into rest of one who edited the account of the 1866 "Proceedings."

Another subject Dr. Masters used to talk about freely was the Royal Horticultural Society. He was always one of its most loyal supporters. The assistance he was able to give to the reforming party towards the close of the South Kensington period was extremely valuable. The important incidents connected with that uninspiring chapter in the society's history were as fresh in his memory as ever, including the extraordinary measures that were adopted to preserve the Lindley Library from the probable confiscation by the society's creditors.

At a much more recent date the late Editor felt it his duty to oppose the proposal that was made to purchase a new garden for the society, when it had no better place in which to hold its fortnightly exhibitions than the Drill Hall in Buckingham Gate, and no building of its own that could be used as offices. The wisdom of the opposition on that occasion is now generally recognised, and how perfectly the feelings of the great body of horticulturists were expressed in these pages was proved by the extraordinary enthusiasm with which the "Hall" scheme was subsequently taken up, the satisfactory completion of the building, and the excellent uses to which it is now applied.

Dr. Masters used to relate many interesting incidents connected with the society's old gardens at Chiswick, and our readers will remember how reluctantly he at length acknowledged the need there was for relinquishing them before the expiration of the lease. Nevertheless, when the late Sir Thomas Hanbury presented the Wisley Gardens, he was as delighted as anyone, and from that date he pleaded for the establishment there of a research department and laboratory. Whilst he lay ill an invitation was addressed to him from the Council to attend the opening ceremony of this station on July 19 next, but he knew not of its receipt.



THE LATE DR. MAXWELL TYLDEN MASTERS, F.R.S.

(From photographs taken in 1873 and 1897.)

Kew. At the annual dinner of the Kew Guild, on May 27, Mr. George Massee, who presided, made some good-humoured criticisms of gardening as it is commonly practised. Fearing that all praise and no fault-finding would not be calculated to inspire efforts towards improvement, he found occasion to read several lessons, which, greatly exaggerated as they were, may not have been without value to those who listened to his remarks. One of the failings specially rebuked was that of cultivating an excessive appreciation for primary colours and introducing these into the flower garden to the exclusion of all intermediate shades. This is a conspicuous error in some gardens, and there can be no doubt but more satisfying effects and greater refinement are obtainable from a system in which gradation of colour, and colour-harmony are given proper representation. In the pruning and lopping of trees there is just as much need for improvement, but in this respect the collection of trees and shrubs at Kew afford an object-lesson of the good results that follow a moderate degree of pruning and training, one in which the cutting of trees of different habit to one stereotyped form is avoided, and yet proper care taken to assist by judicious pruning the development of good specimens. The "mixed" flower border, likened by Mr. Massee to a "trial" border, has always caused considerable controversy, and in no part of the garden is greater care and better taste needed than in the selection of suitable plants for such positions. The chairman was equally critical in regard to the workers in the herbarium, and besought botanists to get beyond the "species" stage. It was all very well to name new species, but botanists should utilise the species as a groundwork for further research.

Mr. Curtis, in responding for the Guild, and Dr. Henry, in a subsequent speech, showed how greatly disseminated are Kew men, and Dr. Henry, referring to the present condition of Kew Gardens, stated that, although he had travelled widely, so far as he knew there was "no spot in the world so beautiful as Kew."

ROYAL HORTICULTURAL SOCIETY.—The Committees of this Society will meet on Tuesday next, June 11, in the Hall in Vincent Square, Westminster. In the afternoon, at 8 o'clock, Mr. WALTER P. WRIGHT will deliver a lecture on "Arches, Pillars and Pergolas."

BOTANICAL MAGAZINE.—The following subjects are illustrated in the issue for June:—

RHODODENDRON DELAVAYI, tab. 8,187.—This Chinese species is very similar to forms of *R. arboreum*, as was stated by Mr. W. WATSON in *Gardeners' Chronicle*, 1904, vol. xxxv., p. 262. *R. Delavayi* has intensely red flowers with black blotches on the inside. It has been in cultivation in Europe for nearly 20 years, and at Kew previous to 1894, but has never flowered there. The figure was prepared from a specimen from the garden of Mr. THOS. ACTON, Kilmacurragh, Wicklow, where it first flowered in 1904. The note is contributed by Mr. W. BOTTING HEMSLEY.

TAMARIX PENTANDRA, tab. 8,188.—A species described by Dr. STAFF as growing wild in countries extending from the Balkan Peninsula through Southern Russia to Turkestan, and from Asia Minor to Persia, adorning the banks of the rivers. The flowers are usually rose-coloured, but some-

times white or nearly white. The species has been known as *T. Pallasii* and a note by Mr. BEAN was printed in these pages on September 23, 1905, p. 229, under the name of *T. Pallasii* var. *rosea*:

EUPATORIUM GLANDULOSUM, tab. 8,189.—This Mexican species was figured in the *Botanical Register* in 1835, tab. 1,728. Mr. HEMSLEY now considers *E. trapezoideum*, Kunth, of which a note by Mr. ROLFE appeared in *Gardeners' Chronicle*, May 5, 1906, p. 274, to be synonymous.

GENTIANA ORNATA, tab. 8,140.—The plant originally described in the *Botanical Magazine*, tab. 6,514, is not the true *G. ornata*, and no dried materials of the specimen figured having been preserved, its identity cannot now be established, but it is considered to be near *G. nipponica*, Maxim. A note by W. I. on the plant now figured, of which Mr. HUTCHINSON supplies the description, was published in *Gardeners' Chronicle* on September 8, 1906, p. 112.

DENDROBIUM ASHWORTHIAE, tab. 8,141, and O'BRIEN in *Gardeners' Chronicle*, February 9, 1901, p. 86, fig. 36.—A plant of this species now in the collection of Sir TREVOR LAWRENCE, Bart., at Burford, is believed to be the only surviving specimen in Europe. The flowers are creamy white with a few purple streaks at the base of the lip. The description is by Mr. ROLFE.

R.H.S. COMMITTEES' OUTING TO BURNHAM PARK.—Those members of the Royal Horticultural Society's committees who were present at the ordinary meeting on May 14 will remember that a cordial invitation to visit East Burnham Park, Slough, at an early date, was given them by Mr. HARRY J. VEITCH, V.M.H., and a game of cricket on the excellent ground there was suggested. The week of the present month beginning on the 17th is considered as presenting the most favourable time for the trip, and it will be for the members of the committees in conference when they meet on the 11th inst. to fix which day of that week other than Saturday will be most convenient for the majority. Mr. VEITCH generously intimates that he will provide conveyances for the party from Slough Station to East Burnham Park. He invites all members of the committees who may desire to accept his invitation, and trusts that those who do not play cricket will yet find ample means of spending a very enjoyable time. Intending cricketers, writes a correspondent, will do well to employ the interval in polishing up their batting and bowling. As the entire party should not exceed 80 in number, it is hoped that those desirous of joining the excursion will inform Mrs. H. J. VEITCH at 34, Redcliffe Gardens, South Kensington, S.W., at an early date. Generally, it is hoped that all coming from London will travel to Slough by the 10 a.m. train from Paddington, and those coming from other directions will endeavour to reach Slough about 10.30 a.m. at the latest. East Burnham Park is some four to five miles from Slough Station, and therefore it will be most convenient if all the party can assemble at Slough at the same time. Any, however, who cannot possibly reach Slough at the time stated, should in their acceptance state the time when they will arrive.

GOOD PRICES FOR ASPARAGUS.—There was a fine exhibition of Asparagus in Evesham Town Hall on Monday, May 27, writes Mr. J. UDALE, and at the close the whole of the exhibits were sold by auction. The bundles contained 120 heads each. The heaviest bundle weighed 24½ lbs., and sold for 48s. The best bundle in the show realised 50s.; others sold for 40s. 6d., 35s. 6d., 28s., 26s., 25s., 21s., and 20s., respectively. The remainder—between 80 and 90 bundles—realised from 17s. 6d. per "100" down to 4s. 6d., the majority realising upwards of 10s. per "100."

NEW YORK INTERNATIONAL CONFERENCE ON PLANT HARDINESS AND ACCLIMATIZATION.

—The Horticultural Society of New York have inaugurated a conference on these subjects to take place from September 30 to October 2 in the rooms of the American Institute and the Museum Building of the New York Botanical Garden. The second day, October 1, will be devoted to some form of pleasure, possibly an excursion to a place of interest in the neighbourhood.

POULTRY CONFERENCE.—We have received a copy of the provisional programme of the second National Poultry Conference, to be held at Reading on July 8, 9, 10, and 11 next. Those who require particulars should write to the general secretary, Mr. EDWARD BROWN, 12, Hanover Square, London, W., or to the local secretary, Miss RIDLEY, Orwell House, Reading. There is an influential local committee at Reading, of which Mr. LEONARD SUTTON is chairman.

CABBAGE LETTUCE MAIKÖNIG (MAYKING).

—When this variety first came into commerce, now some few years ago, the verdict of the gardeners was that this was a first-class novelty. For a time, indeed, it was possible to get seeds true to name, but it is now very difficult to obtain seeds that produce a plant of the quality once so good. It was supposed by some growers that the variety was not constant. The raiser, H. DAVID SACHS, of Quedlinburg, states in the *Deutsche Gärtner Zeitung* that it always came true with him, but that in the following autumn, after he sold his stock of the variety, other seed, under the name Maikönig, from France and elsewhere, was offered at very low prices, and this fact has brought discredit on the variety. The true Maikönig is described as a quick grower, every plant forming a good heart, and they withstand hot, dry weather. According to H. SACHS, the variety makes any other quite unnecessary. If sown under glass in January and February and planted in the open air at the end of the month of March, it affords hard-hearted Lettuces as early as the ordinary autumn-sown varieties. It is equally valuable planted in cold frames. F. M.

THE PERPETUAL FLOWERING CARNATION.

—This is the title of a brochure by MONTAGU C. ALLWOOD, and published by HUGH LOW & Co., Bush Hill Park. The book is a practical one, written by a cultivator who knows his business and how to convey instruction in a pleasing manner. If, after consulting its pages, a gardener or amateur fails in the attempt to grow the new type of winter-flowering Carnation, Mr. ALLWOOD must be held innocent, for the instruction he supplies and the advice he tenders are alike admirable. There is little connected with the "American" Carnation (a designation objected to by the author) that is not clearly described, and though there may be nothing advanced which is not already well known to the trade grower, gardeners will find many cultural hints of much value. The instruction given regarding the stopping of the different varieties, of which a list is supplied, is extremely valuable, and that is only one of many hints equally desirable. There are short chapters on the Souvenir de la Malmaison type and on Border Carnations. The author is, however, mistaken in asserting that the production of flowers of Souvenir de la Malmaison varieties out of season "is not practised by any grower without loss and uncertainty," and in assuming that they must be forced to flower in winter. There is a good chapter on pests and diseases, as well as one on manures, and these are somewhat marred by compositors' mistakes. The book is well illustrated.



THE INTERNATIONAL HORTICULTURAL EXHIBITION OF MAY, 1866.—MEMBERS OF THE EXECUTIVE COMMITTEE.

Back row (standing), reading from left to right :—Charles Turner, Charles Lee, Richard Dean (Assistant Secretary), William Paul, John Gibson, Charles Edmonds, John Standish, John Lee, William Ball, E. Easton, B. S. Williams, T. Osborn.

Front row (sitting) :— Dr. Hogg (Secretary), R. Fortune, Thomas Moore (Secretary), Sir C. Wentworth Dilke, Bart., M.P. (Chairman), Sir Daniel Cooper, Bart. (Treasurer), Dr. M. T. Masters (Congress Secretary), Prof. Bentley, James Veitch, Harry J. Veitch.

Temple Press Ltd., Printers, 7-15, Rosebery Avenue, London, E.C.

THE GARDENERS AT KEW.—"Few of those who are acquainted with the Royal Botanic Gardens at Kew will be other than surprised, to say the least, at the statement recently made in the House of Commons by Sir E. STRACHEY that the men employed at Kew are not properly gardeners, but only apprentices. It appears that the Kew men have asked for the same conditions of employment as the Government concedes to men of the same age and character in the Royal parks, such as Hyde Park, not to mention the L.C.C., whose men are even better treated. Certainly, the condition of the gardens at Kew is one that reflects credit on that section of the staff which is responsible for its management, and if such high-class gardening as is there displayed can be accomplished by apprentices, who, we are told, are not paid wages, but receive only what is called "a subsistence allowance," we recommend other Government departments to adopt the Kew apprentice system. On inquiry, however, we were informed that Sir E. STRACHEY's statement was incorrect. The facts are, that some 60 journeymen gardeners of the average age of 24 years, who must have had at least five years training in good gardens before entering Kew, are employed to do the work, for which they are paid wages of 21s. per week, their hours of labour being from six to six, or daylight to dark. From what we understand of this question, the Board of Agriculture is not dealing fairly with a body of men whose work is a proof of their skill and assiduity, and that it is appreciated by the taxpayer is proved by the large crowds that daily visit the gardens for instruction and enjoyment. We have every reason to be proud of Kew, and in our opinion the treatment of the employees should be such as would not justify complaint."—*Field*, June 1.

RETIREMENT OF MR. MCINTYRE.—This well-known Scottish gardener is retiring from his charge of The Glen Gardens, Innerleithen, Peeblesshire, in which place he has been head gardener for the past 30 years. He proceeds to Honolulu, where several members of his family reside. As an exhibitor and judge, writes a correspondent, Mr. MCINTYRE was most courteous, his unassuming manner rendering him very popular. For many years he has been one of the leading exhibitors at the Royal Caledonian and Scottish Horticultural Society's shows, winning many valuable prizes. It will be remembered that Mr. MCINTYRE was the recipient of the Neil prize given by the Royal Caledonian Society in 1900 as a successful cultivator and botanist. Mr. and Mrs. MCINTYRE have received presentations from the garden employees at The Glen.

CAULIFLOWER AND CABBAGE ROT.—Our valued correspondent, Dr. COOKE, writes: "For many years Cabbages and Cauliflowers in the United States have suffered from attacks of Black Rot, which has been attributed to bacteria, under the name of *Pseudomonas campestris*. During the past two years the same vegetables growing in the vicinity of the Missouri Botanical Garden have been affected with a dark rot, which at first was attributed to *Pseudomonas*, but latterly the disease has been found to have quite a different origin. Although it is affirmed that Bacteriosis is responsible for more diseased plants than all other causes, yet the present pest is likely to inflict serious injury, and, as it is known in this country and in Europe generally, as affecting other plants it is a serious matter. This rot is more watery than that caused by bacteria, and the diseased tissues are not so dark in colour. The younger growing portions of the plant are favourite places of attack. The petioles of the leaves are often rotted away at their base, the leaves droop, and the fungus grows down through each leaf, rotting it, and often forming sclerotia on the thinner portions. Sometimes older plants of

Cauliflower are attacked at the base, and rot off, before the inflorescence becomes diseased. The fungus produces a white fluffy mycelium, but it is not stated whether the presence of conidia has been observed, under the form of botrytis, although this is probable. The rot is often accompanied by numerous black specks, which are the sclerotia, and from these, by culture, have been developed the peziza-forms, well known under the name of *Sclerotinia Libertiana*. These sclerotia have been observed, after remaining dry for over a year, to throw off filaments; develop an extensive mycelium, and form new sclerotia, thus indicating great vitality at this stage. The cup-like receptacles, which terminate each stalk-like development from the sclerotia, are trumpet shaped, with, at first a convex cup, then flattened, and ultimately concave when mature, and of a light brown colour. The inner surface of these cups is covered by the hymenium, or fructifying portion, and consists of cylindrical sacs, or tubes, each containing eight ascospores, measuring 9-13 by 4-6 mm. Inoculations with the ascospores produced the typical rot of the Cauliflower. These details are taken from the reports of the Missouri Botanical Garden, but, at present, they are not accompanied by any suggestions for combating, or the results of any experiments, in the control of the disease. The fungus is described in Dr. COOKE's *Pests of Cultivated Plants*, p. 102, as Cucumber sclerote, and is probably also the same as that which attacks Potato haulms. One precaution may be taken, by burning all infected plants at once, and thus preventing the spread of the disease.

AMATEUR AND PROFESSIONAL ROSE GROWERS.—A note in our American contemporary *Horticulture* upon the methods of the American Rose Society serve to remind us how perfectly our own National Rose Society has won the esteem and support of both amateur and trade growers. Many of the American horticultural societies represent trade interests almost exclusively, and our contemporary remarks that if ever popular enthusiasm is to be awakened on behalf of a National Rose organisation in the States, it will undoubtedly be by the employment of very different methods from those that have proved effectual in the upbuilding of the professional societies to which we have alluded. The circumstances are so different in England that at every exhibition of the National Rose Society there are Roses staged by new amateur exhibitors, and it would be difficult for the visitor to estimate whether the nurserymen or amateurs have the greater enthusiasm for cultivating and exhibiting their flowers. The American Rose Society may, therefore, be recommended to ascertain from the genial secretary, Mr. ED. MAWLEY, by what means such a satisfactory condition has been brought about.

DINNER TO CONTINENTAL HORTICULTURISTS.—A company of 220 foreign horticulturists recently visited London in order to inspect the Temple Flower Show, Kew Gardens, and other places of horticultural interest. The party was entertained at dinner on the second day of the Temple Show by a number of British horticulturists, in the King's Hall, Holborn Restaurant, under the presidency of Mr. J. S. BRUNTON. The foreign friends were numerous, and the company included M. HUGUENET (Editor of *La Chronique*), Mr. GEO. SCHNEIDER, M. LAGEAT, M. GAB. DEBRIE, several officials of the Alliance Fraternelle Internationale, M. L. CHENAULT, M. LETELLIER, of Caen, M. and Mme. VACHEROT, M. G. VAN DEN HEED, Mr. F. SANDER, M. C. DELONCLE, the Mayor and Mayoress of DUNKERQUE, &c. The usual loyal toasts having been honoured, the Chairman proposed the toast of "Our Guests," which he did in the warmest terms of welcome, and with references to visits spent abroad with brother horticulturists. The speech was translated into

French by M. DUMONT, the Mayor of Dunkerque. Responses came from M. DELONCLE, Deputy of the Seine and President of the Federation of French Horticultural Syndicates, who replied on behalf of the French visitors in an excellent speech full of friendly allusions to the organisers of the great gathering and admiration at the grand exhibits they had that day seen at the Temple Show, which had been of great educational value to them. Messrs. NEUBERT and KOENEMANN replied for Germany. They called attention to the Mannheim Exhibition, and read a telegram from the Burgomaster of that city offering a hearty welcome to all English horticulturists. M. RUY, in excellent English, replied for Holland, repeating his speech in French for the benefit of those visitors who were unacquainted with English. Belgium was represented by Mr. F. SANDER, who, in an able speech, referred to the extensive commercial relations existing between Belgium and Great Britain. The Mayor of DUNKERQUE, Sir THOMAS BARCLAY, M. LEBEL, and several others also made speeches.

DEPARTMENTAL COMMITTEE ON AGRICULTURAL EDUCATION.—This committee, of which Lord REAY is chairman, held meetings on May 28, 29, and 30. Mr. J. MARSHALL DUGDALE (nominated by the Royal Agricultural Society of England), the Vice-Chancellor of Oxford, Sir OLIVER LODGE and Mr. WALTER E. COLLINGS, Birmingham University, Mr. RICHARD P. WARD, the Director of Education Cheshire County Council, Miss MAY CROOKE, of Bredon's Norton, Tewkesbury; representatives of the University College, Reading; Hampshire Farm School, Basing; and of Studley College, Warwickshire, attended and gave evidence.

NATIONAL CHRYSANTHEMUM SOCIETY'S OUTING.—The annual outing of the members of this society will take place on Thursday, June 20, when, by kind permission of JEREMIAH COLMAN, Esq., a visit will be paid to Gatton Park, Surrey. The whole of the grounds and greenhouses at Gatton will be open for the inspection of the members. Brakes will convey the party to Gatton, and also from Gatton to Redhill for lunch, and during the afternoon there will be a drive through the surrounding country. Tea will be served at Redhill. Tickets, price 10s. 6d. each, which includes railway fare, dinner, tea and drive, can be obtained from the secretary, Mr. RICHARD A. WITTY, St. James's Villa, Swain's Lane, Highgate, London, N.

CARNATION PEST—ALTERNARIA.—Mr. WOODS, of the Department of Agriculture, U.S.A., gives some important information respecting this new Carnation pest. He says: "The disease is quite serious on the softer-leaved varieties, such as those of the Lawson type, especially the Lawson and the Enchantress. The disease behaves very much like the other Alternaria diseases, especially the one on the Violet, attacking not only the leaves, but the stems, cutting the plants back very seriously in many cases. In fact, I have seen whole houses of Carnations practically stripped of their leaves, and losing a large part of the top. Plants grown out of doors, exposed to rain and dew, especially in the night, are very subject to the disease and suffer seriously when the plants are moved from the house. It is, of course, then rather difficult to free the plants of the disease, without cutting them back very severely and spraying them thoroughly with soap Bordeaux (mixture). The proper treatment is to spray the plants from the time they are set in the field until the time they are moved into the house, keeping the young growth well covered with Bordeaux, and continuing the treatment after the plants are in the house until they become well established. If the plants are grown in the house all the year, and the leaves are not allowed to remain wet overnight, the disease seldom, if ever, does much injury."

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

THE PRESERVATION OF PLANTS BY STEEPING AND SAND-DRYING.—Decorative plants may be made to preserve their freshness and beauty for some considerable time by the employment of a method discovered by an Italian. The method employed consists in washing the roots thoroughly, so as to remove every particle of earth from them, and then to cover the plant with dry sand in a box. Care must be taken that the leaves do not fade or shrivel, and that those packed closely together do not ferment, otherwise the foliage, when dry,

sand thus prepared will last for a considerable time. The fatty matter is to prevent the sand from sticking to the roots or foliage, and the salicylic acid and alcohol prevent fermentation and preserve the colour. A box of sufficient size to permit of the branches being stretched out their full length without crushing them must be used. The box should have thin sides and a sliding bottom, and on the top a grating with spaces sufficient for the sand to pass through. At the bottom of the box is placed a thin layer of sand, and then the plants, leaves, or branches are placed as much as possible in their natural positions, and the sand is dropped in through a sieve or funnel so as to fill every interstice closely. When the plants are covered completely with sand, the box is placed in a stove or oven

bonate of copper for two or three hours, according to whether the plants are much faded, and whether an intense green is required or not; they should then be hung up to dry, and placed in a preparation consisting of glycerine. J. J. Dunnington-Jefferson.

SUCCULENCY DUE TO SALT.—The fleshy Primrose described on p. 322 has, of course, become succulent by the direct action of the salt, as M. Lesage long ago proved to be the case with maritime plants.* A very similar occurrence takes place at Bad Nauheim, where a salt spring rises as a natural fountain, some 10 or more feet in height, and the water is conducted to a construction for condensing the brine. An erection of faggots, some 60 feet in height in a frame-work,



FIG. 157.—MESSRS. W. BULL AND SONS' EXHIBIT OF ORCHIDS AT THE TEMPLE SHOW.

[For details see last issue.]

will turn black. In order to prevent this happening, the plants are plunged into a solution of salicylic acid in the proportion of one part of the acid to 600 parts of alcohol, heated in a water bath. It is only necessary to place the base of the leaves and of the larger branches in the solution for some hours. For plants of finer growths, such as *Asparagus plumosus*, the lower parts are immersed in a solution of 15 parts of alum and two parts of nitre to 80 parts of water, in which they must remain for four days. If only the leaves and branches are required to preserve, it will be sufficient to immerse their bases in the solution, and in this manner the natural colour of the foliage remains unimpaired. One may also use the sand of fine gravel, well screened, and cleansed from all earth, and dried thoroughly in the sun or in a stove, with an emulsion well mixed, composed of 70 parts of alcohol to three of stearine, three of paraffin, and four of salicylic acid. The

heated sufficiently to dry its contents thoroughly in six hours, after which it is taken out, and a day or two later the sliding bottom is removed so that the sand falls through below, leaving the branches and leaves sterilised but uninjured. In Germany a different method is adopted for sterilising green plants, each leaf having a hot iron passed over it to remove any moisture from the tissues and to prevent fading. To further secure absolute dryness, each leaf is placed flat between pieces of blotting paper. To give the leaves their former suppleness, and to make their colour lasting, they are steeped in a bath containing carbonate of copper and alcohol for half an hour, and then hung up separately to dry. After two or three days they are given a coating of white varnish and are again hung up to dry, after which they may be arranged to form a decorative plant. If the plants are faded and it is desired to make them green again they should be steeped in a bath containing car-

forms a long wall. The brine is pumped up to the top of this, and as it trickles through the faggots the water evaporates and the denser brine is collected below. The effect upon the plants in the neighbourhood is to make several of a more or less fleshy character than is normal to them. I collected specimens of *Plantago*, *Atriplex*, *Daucus*, *Spergularia*, &c. The influence was most characteristic in the first-named plant, and its appearance was so altered as to resemble *P. maritima*, the leaves being long and without teeth or small projections as in *P. Coronopus*. There were plants of various sizes; the largest had leaves 1 foot in length, the scape measuring 1½ feet, with the flower-bearing extremity 3-5 inches long. As the nearest sea-board is some 200 miles off, I would suggest that it is a local evolution of a new species or variety of *P. Coronopus*. George Henslow.

* *Rev. Gén. de Bot.*, vol. ii., pp. 55, 106, 168. Also *Comptes Rendus*, cxii., 1891, p. 672.

TO PRUNE OR NOT TO PRUNE.—The judicious pruning of fruit trees is too well established a practice to be injured by anything that Mr. Simpson may write against it, but any unnecessary mutilation of the trees deserves condemnation. Neglect with regard to careful pruning and manuring is largely responsible for the immense quantity of inferior fruits seen in our markets. During the past 42 years, which embraces the period of my horticultural experience, probably all of our best fruit-growers have been pruners. If we pass to commercial fruit-culture, we find similar results: the men who prune, manure, and spray are the men who obtain commercial success, because they obtain the highest average quantity and quality of fruit. Since May 15, I have received six letters from as many fruit-growers living within a radius of 15 miles of Droitwich, and together they cultivate a total area of 664 acres of fruit of all kinds—partly arable and partly grass. Each gentleman states that he annually prunes his fruit-trees; and, even in the case of old orchards, they prune more or less every year, according as they can find time. There is no sentiment in their case, but strict business methods, for fruits of good quality must be obtained in abundance to afford a profit. Within a radius of six miles of Evesham there are more than 9,000 acres of land devoted to the culture of fruits and vegetables, and practically the whole of this land is dug or ploughed. Plums, Gooseberries, and Strawberries are the staple fruit crops, and in the order here given. Apples are not much grown, but their cultivation is extending, and I observe that the trees are generally trained as bushes and half standards. The varieties of Plums grown are mainly Pershore, Victoria, The Czar, River's Early Prolific, Damascene, White Magnum Bonum (so-called), and Heron. Of these, Pershore, Damascene, and Magnum Bonum—which is either Abricot or White Perdrigon—require little pruning, owing to their habit of growth; the other varieties need and receive more attention in this respect. The Pershore Plum is such a reliable fruiter in this county that it is a great favourite, and is grown in large quantities. I have said it requires and receives little pruning, hence, it is easy for a stranger taking a chance journey through the county of Worcester—especially in certain directions—to form the erroneous opinion that pruning, in a general sense, is little practised. The experimental results published by the county of Worcester are as trustworthy as daily note-taking, careful weighing, and measurement can make them. *James Udall, Droitwich.*

—The subject of the pruning of fruit trees is so important commercially that it demands a full discussion, and though I have no desire to share in the controversy between Mr. Udall and Mr. Simpson, certain facts which have come within my own experience may be placed on record. As a rule, after the first year's training of a bush or standard tree in a nursery or elsewhere, the tendency is to either prune too much or not at all, and the happy, reasonable mean has been the exception. Both these extremes are to be condemned. Within the past 18 months my journeys have covered an area extending from Yorkshire to Cornwall, and during this time some hundreds of commercial fruit and vegetable gardens have been inspected. In the majority of the young and recently-formed plantations the hard pruning formerly too conspicuous is being rapidly discarded for a more common-sense procedure, because experience has proved the increased money value of the much heavier crops of Apples and Pears thus secured. The fact is when once the foundation of a well-developed tree is formed, the sooner pruning can be reduced to the lowest point, consistent with maintaining an equal distribution of the branches, preventing either crowding or the production of long, straggling growths, the better will be the prospect of securing paying crops. This is especially the case where the trees grow very vigorously, and, in consequence, remain comparatively unfruitful. Root pruning is often a remedy in such instances, but it frequently happens in market plantations that neither the expense, labour, nor time can be found for this operation, the reduction or temporary cessation of branch pruning, in these instances, forming a cheaper and commonly efficient means of correcting the evil. Add to this a judicious thinning of the fruits, and the result, in nine cases out of ten, is highly satis-

factory to the grower. In one large plantation of comparatively young Apple trees under my observation, the trees had borne but few fruits, but growth had been extremely strong. They had been previously pruned severely, and not with much judgment, early each autumn, but it was decided to leave them unpruned last season, and all have flowered with great profusion. The remarkable point was, however, that, on a careful examination of 50 trees of different varieties in different parts of the 20 acres, I found that, taking an average, nearly 80 per cent. of the shoots bearing trusses of flowers would have been removed in any pruning of the type which had prevailed. A fortnight after the examination in question another plantation was seen, where identically the same practice had been followed, only the reduction had been commenced the year before. The soil and conditions were similar, and the trees were about the same age, but the improvement was most noticeable, as less unduly vigorous wood had been produced, and there was a greater proportion of the desired fruit-spurs forming. The owner had resolved henceforward to confine his pruning to thinning and moderate shortening where necessary. As regards the older plantations and orchards, non-pruning has, unfortunately, resulted in the grossest neglect, and I have seen scores of examples in the Western counties where trees that might have been handsome, productive specimens are nothing but thickets, which are only reduced when the owners are in want of firewood. *Lewis Castle.*

STRAWBERRY ROYAL SOVEREIGN.—As the growers of the large fruits of this Strawberry, referred to by *F. M.* and *A. D.*, we should like to say that they were the largest ripe fruits picked from a batch of about 600 pots. During their season of forcing they were given three applications only of a fertiliser, and weak manure water was applied the same number of times, which certainly does not represent gross feeding. As growers for market we do not over-thin the fruit, but always expect to have a fair crop of large fruits, which last year were even larger in size than they have been this year. None of your correspondents has mentioned "Sir Harry," one of the very finest forcing varieties of former times, but now worn out—at any rate in this district. President was good for some years, but it has deteriorated like Sir Harry. The variety James Veitch is a very large fruit but it is "woolly" and of poor colour. We have forced all these kinds in quantity, and now grow only Royal Sovereign, but like *A. D.* we are waiting for a better one. *S. Ledsham & Son, Chester.*

—The remarks recently made by *F. M.* (p. 304) regarding the quality of Royal Sovereign Strawberry are contrary to the high opinion formed of it by every cultivator of this and other varieties of the Strawberry that I am acquainted with. I have grown large quantities of plants under glass and out of doors of many varieties, including those mentioned by *F. M.*, during the past 35 years, and I have no hesitation in saying that, all points being considered, Royal Sovereign is, in my opinion, one of the best Strawberries in cultivation; and were I confined to four varieties I should choose Royal Sovereign, Sir Joseph Paxton, Auguste Nicaise, and Elton Pine, the last-mentioned variety planted on a north border for yielding late supplies of fruit. *F. M.* states that "many visitors to a recent meeting of the R.H.S. would doubtless ask themselves if there is merit in producing Strawberries of such enormous size," adding "that the variety has nothing to recommend it on the score of flavour, and that the size and weight of the fruits—2 oz. each—seemed scarcely desirable points in a Strawberry." My answer to the above is that the fruits in question bore evidence of high cultural skill on the part of the cultivator, and the fact of the individual fruits being double the weight of the normal size ones does not necessarily tend to deteriorate the flavour. On the contrary, I consider large fruits of good varieties of the Strawberry are better in flavour than smaller fruits of the same variety. And why should this not be so? The plants in pots are not over-cropped, the fruits being thinned out to a certain number, and they are generously and judiciously tended in the way of watering and feeding at the roots during the whole period of the plant's growth, especially while swelling their fruits. Small, starved-looking fruits afford evidence of faulty culture.

Royal Sovereign Strawberry has everything to recommend it—productiveness, large fruits of good shape, and fine flavour. The varieties mentioned by *F. M.* as greatly excelling Royal Sovereign—namely, Doctor Hogg, Vicomtesse Hericart de Thury, La Grosse Sucrée—are, as a matter of fact, very inferior to that variety in every respect, and, as might be expected, were discarded by cultivators generally after Royal Sovereign was introduced. One of the other varieties mentioned by *F. M.* made quite a stir among Strawberry-growers when it was first shown, on account of its large size—I refer to James Veitch; but to say that it is superior to Royal Sovereign in shape, colour, and flavour is a mistake: the reverse is the case. In conclusion I may say that were I limited to the cultivation of two varieties of the Strawberry, I should at once select Royal Sovereign and Sir Joseph Paxton, for, in addition to the plants being good bearers, the fruits of good size, handsome shape, bright colour, and fine flavour, are firm in texture, and stand the effects of travel well—a point not to be lost sight of. Your correspondent's remarks at p. 304 seem to suggest the erroneous idea that size in fruit is developed at the expense of quality. This assumption is wrong. If extra size is an admittedly good variety of fruit—whether it consists of, say, a British Queen Strawberry, Pineapple, or bunch of Muscat Grapes—be attained through proper cultural skill, why should the flavour of the fruit be thereby impaired? In short, why should a fruit of normal size in British Queen Strawberry be superior in flavour to one weighing 2 oz.? And, again, why should not the quality of a Queen Pineapple weighing 7 lb., or a bunch of Muscat of Alexandria Grapes of like weight, consisting of large, fleshy, well-ripened berries, be as good—not to say better—as that which characterises smaller specimens? *H. W. Ward, Lime House, Rayleigh.*

PROTECTION FROM SLUGS.—Slugs will not crawl over roughly-broken bricks. I had some put round the roots of my Peach trees last year, and no slugs attacked them. This is done in India to keep snakes out of houses. *G. M. Scriven, Watchfield, Shrivenham, Berks.*

WATSONIA ARDERNEI.—In the spring of 1905 I obtained bulbs of this handsome plant, and these were potted separately into 5 and 6-inch pots in a mixture of equal parts peat and loam, with a fair admixture of sand. The pots were stood in a cool greenhouse upon ashes that were kept moistened. They flowered fairly well during the early part of the succeeding summer. Most of these bulbs were unfortunately lost, the result, I believe, of having been kept too dry during their dormant stage. Early last year four dozen fine bulbs were received from South Africa, and these were at once potted into 6-inch pots, but on this occasion a porous soil of loam, leaf-mould, and sand was used. These plants were given the same position as the preceding batch, but they grew with more freedom, and developed tall, branching flower-spikes of pure white flowers. This spring after each bulb had successfully passed through the winter, they were given the same culture as before, but the resultant growth is deplorably weak and in no way compares with the robust, self-supporting growth made when the bulbs were first imported. The Watsonias are extremely handsome subjects, but their fickle nature under cultivation depreciates their value as garden plants. *F. W. G.*

RED CABBAGE AND PURPLE BEECH.—Will some reader who has had experience with these two plants in the same locality state whether the red-coloured form is in each case harder than the normal or green type, viz., Red Cabbage than ordinary Cabbage, and Purple Beech than common Beech? *Ruber.*

GARDENERS EXCEL AT CRICKET.—Considerable interest is taken in sport at Welbeck, especially in cricket, and his Grace the Duke of Portland, K.G., in order to encourage the sport amongst his employés, presents a solid silver cup to be competed for in a three-round, annual contest between the employés of the various departments on his estate. This year the gardeners, captained by Mr. J. Gibson, beat the house department in the final match, thus becoming the holders of the trophy. *A. R. Gould, Welbeck.*

WISTARIA AND BAMBOOS AT LATHOM HOUSE, ORMSKIRK.—I was surprised to see at Lathom House recently *Wistaria sinensis* in almost full flower. The plant is rambling over the upper portion of a wall above the roof of one of the houses 12 yards in length and a yard in width, and is planted in the west end of the glass house. Are there any other specimens north of Manchester? [Yes, many.—ED.] My next surprise was a clump of Bamboos 38 yards in circumference and about 15 feet in height that was planted by Mr. Ashton 10 years ago. The late Earl of Lathom was very anxious to include these plants in his gardens, and Mr. Ashton was requested to select the most suitable place for them. He excavated the space 5 feet deep and filled it with a suitable compost containing a large quantity of manure. Mr. Ashton supplied me with the names, as follow: *Bambusa stricta*, *B. Metaké*, *B. tessellata*, *B. viridi-glaucescens*, *B. nigra*, *B. Henonis*, *B. Quiloi*, *Arundinaria Veitchii*, and *A. Simoni*. An orchard house 150 feet long and 8 feet wide was planted with cordon Peas, Plums, and Cherries three years ago, and there are Peach trees of long standing on the back wall. All are well furnished with fruits. Between the cordon trees are culinary Peas in pots. There were also noticed fine crops of Figs and thousands of plants of both Tree and Souvenir de la Malmaison Carnations. *W. R.*

THE BERBERIS.—The species of *Berberis* are amongst the most beautiful of spring-flowering shrubs, and in their freedom of flowering and their graceful habit they never fail to impress the beholder with their worth. Few shrubs, when grouped together in large beds or in borders, afford a more pleasing and picturesque effect than these. Of the many species and varieties worthy of notice are *B. Darwinii*, a native of Chili, and one of our most charming flowering shrubs. Its rich deep green, box-like leaves, and profusion of brilliant orange-coloured flowers, render it a conspicuous object in any collection of shrubs. *B. stenophylla*, a hybrid between *B. Darwinii* and *B. empetrifolia*, is characterised by its arching and graceful shoots, that are clothed with small deep green leaves, and it bears a profusion of golden-yellow flowers. *B. dulcis*, or *buxifolia*, is of a rather upright habit, with solitary golden blossoms, suspended from unusually long stalks. *B. empetrifolia* is a most desirable subject for a rockery, and rarely attains to a greater height than 2 feet. Its slender branches are clothed with narrow leaves, and later in the season are studded with yellow blossoms. *F. G. Tutcher.*

THE HARDINESS OF THE CAMELLIA.—It is a matter for surprise, after the experience of many years in various parts of the kingdom, that a suggestion should be made to test the Camellia as to its hardiness. At St. Leonards, The Dell, Windsor, Glen Eyre, Southampton and on a north border at Chiswick, Camellias proved themselves quite hardy for almost generations. The late Mrs. Eyre Crabbe, of Glen Eyre, where noble Camellias are grown in all positions, some of which are fully exposed to the sun, and others shaded or sheltered, declared they were hardier than the common Laurel. She once said to me, "We have often had the young shoots of Laurels killed by late frosts, but never those of Camellia, as they at least are not made till danger from frost is over and the old wood and leaves never suffer." Camellias came to us with the somewhat ignorant tradition that they were essentially greenhouse plants. Granted to have them in the greatest beauty they need glass covering, but none the less those who knew the great specimens I have seen at Glen Eyre in March, April and May, for the varieties were early and late, will admit they were fine healthy shrubs carrying enormous quantities of flowers. Mr. W. Stewart, the veteran gardener who planted them some 45 years ago, can yet happily tell how he has cut flowers from them by the barrow load each year. A suitable soil consisting of a compound of loam and peat seems to be an essential feature to their success, and none but sturdy young hard-grown specimens should be planted. *A. D.*

YOUNG GARDENERS AND STUDY.—*A. D.*, p. 305, calls attention to the general failure of young gardeners in their literary efforts and I agree with his conclusions. I recently received over fifty letters from journeyman gardeners, in answer to an advertisement, and only two expressed themselves

clearly and lucidly. What chance can a man have in securing a situation when his written application cannot be easily deciphered? It is true that many good gardeners are indifferent at composition, but the importance of good penmanship must be clear to all. I am of opinion that young gardeners do not read to the extent they should, for by reading one may learn spelling and also gain a knowledge of composition. The perusal of good books broadens the mind, and the well-read man stands a better chance of securing, and holding, the best position. *Head Gardener.*

POISONOUS PLANTS.—One hears much about the poisonous effects of certain species of *Primula*, but little about the inconvenience caused to many people in handling certain members of the Composite family, such as *Humea elegans*, *Doronicum*, *Chrysanthemum sinense*, &c., yet the inflammation produced by these latter plants is quite as severe as that caused by, say, *Primula obconica*. Perhaps some reader will elucidate the matter for the benefit of those who suffer, but who do not fully understand the cause of the poisoning and how it can be guarded against or cured? *J. Garner.*

CARBONIC ACID GAS.—I have been hoping that the question of carbonic acid gas supply, raised by me in your issue of May 4 (p. 277), would have evolved some explanations, but so far the only reference thereto has been the very interesting note of Mr. J. J. Willis (see p. 304). Obviously, the case he quotes of a bottle containing 200 ounces = 12½ lbs. of soil at Rothamsted, involves very different conditions to mine of a small pickle jar containing only about an ounce of well-washed silver sand merely thoroughly wetted. Mr. Willis speaks of the formation and exhalation of carbonic acid gas, that is to say, the carbon resulting from the decomposition of the organic compounds contained in the bottle, and this is feasible enough in the case cited by him, assuming always, and this is rather a crucial point in my primary question, that carbonic acid gas is so generated, but in my case there was practically no material for such generation beyond the minute piece of *Scolopendrium* frond base upon which the bud was present, which is now filling the bottle with fronds. That a Fern spore should have been present in such a mass of surface soil is no wonder, the wonder to me is that a forest of such and other plants did not, at any rate, start into existence in the closed bottle. I am not quite clear why Mr. Willis imputes the condensation of water on the sides of the bottle to transpiration and not to mere evaporation from the soil itself. The interior of my bottle is always wet, and would be so if merely the wet sand were inside it. This, however, is a minor point, and in any case I note with pleasure that even in the Rothamsted case, Mr. Willis echoes my query, "How is it done?" At a recent meeting of the Scientific Committee of the Royal Horticultural Society I exhibited the bottle and its contents, and as the bottle had not been sealed, but merely closed by means of a glass stopper surrounded by a very tightly fitting rubber ring, the suggestion naturally arose that it was not absolutely airtight, and Mr. Massee stated that glass was permeable by gases. How far that is the case I do not know, but I should imagine, seeing the duration of vacua in incandescent globes of extremely thin glass, that the possibility of sufficient carbonic acid finding its way through the thick glass of a pickle jar in anything like adequate quantity for the results shown is very remote indeed. Mr. Chittenden has suggested permeation through the rubber ring, which, however, was hardly exposed at all to the air, the glass stopper having a projection which covered the ring and rested tightly on the glass edge of the bottle itself. In any case, however, I have now sealed over the interstice and made the whole perfectly airtight; at any rate, in the ordinary sense of the word, though, of course, not gastight, if Mr. Massee's remark implies ordinarily appreciable diffusion. The great question, however, of the maintenance of the proportion of carbonic acid in the atmosphere, in view of the annual locking up of carbon solidified by plant action, is untouched. *Chas. T. Drucry, V.M.H., V.L.S.*

SWIFT'S LEAD ARSENATE AS AN INSECTICIDE.—In the article on fruit pests of the season, p. 343, *A Working Grower* mentions the use of Swift's lead arsenate as an insecticide. The makers of this

preparation advise the use of from 1 to 8 lbs. in 50 gallons of water. Will your correspondent describe at what strength he is using this preparation with safety? With reference to the Apple sucker which he is hopeful of having banished from his trees, will he tell us as to what particular wash, winter or spring, he attributes his success? This pest is very greatly in evidence in my garden. Caustic wash applied at full strength in winter and spring has had no appreciable effect upon this enemy of Apples. *R. G.*

HARDY RHODODENDRONS.—I read with much interest the paper on hardy hybrid Rhododendrons in the *Gardeners' Chronicle* for June 1, but I think the writer does imperfect justice to the capabilities of *R. arboreum*. He pronounces it "not hardy, except in a few favoured parts in the south and west." Now, as it grows freely and survives the hardest winters, provided it is sheltered from violent winds, on all parts of the west coast of Great Britain from Cornwall to Rosshire, and in all parts of Ireland where the soil is not limestone, I think it would be more exact to say that there are districts where this beautiful tree cannot be grown. I wish more people could be convinced of the advantage of planting *R. arboreum*, *R. barbatum*, *R. cinnabarinum*, *R. niveum*, *R. campylocarpum*, *R. Thompsoni* and other species, instead of confining themselves to hybrids, which never present, to my eye, at least, that appearance of race and delicate harmony of blossom and foliage which the natural species possess. Castle Kennedy, near Stranraer, can scarcely be pronounced an exceptionally favoured spot in the matter of climate, for the grounds lie fully exposed to the sweep of west and north-west winds across a wide sheet of water; but there are hundreds of plants of *R. arboreum* there, some of them 20 feet high, which, although often seared on the windward side, were abundantly furnished with flowers this past spring, and after the most trying winter experienced since 1894-5. *Herbert Maxwell, Monroith.*

CUTTING ASPARAGUS.—Many gardeners continue cutting the finer growths of their Asparagus almost as long as there are any, leaving only the very smallest heads. This treatment must necessarily result in weak crowns. I cut all large and small shoots until about the second week in June, when I leave one or two strong shoots to any crowns that appear to have been hard cut, and after the longest day (June 21) none is cut. Three of our beds are about 40 years old, and I am cutting better heads probably than when I took charge of these gardens 15 years ago. Of course, the above date to cease cutting would not be suitable for all localities, but strong growths must be encouraged in order to induce strong crowns. *F. B.*

HYDRANGEAS IN TUBS FOR GARDEN DECORATION.—In the milder parts of the country all varieties of the *Hydrangea* form beautiful objects on the lawn when planted in small groups, or as solitary specimens and background plants in flower borders. In other parts, where the winters are often too cold, the plants have to be treated to glass protection throughout the winter, being stood in frames or pits, or, failing these, in some warm aspect to make their growth and ripen their shoots thoroughly, otherwise flowering is not satisfactory. If it is decided to form large specimens (they may be grown to 12-15 feet in circumference) to grow in tubs, vases, &c. Plants three to four years old, which have never been forced in heat, should be planted in late spring in a warm aspect, together with a considerable quantity of loam, rough peat, and leafmould mixed with the staple, and at a distance of 3 feet apart, affording them water in abundance in dry weather, and an occasional dose of manure water—preferably that from the cow-stalls. In the autumn these plants should be dug up carefully, the leaves, with the exception of the four around the buds, stripped off, and the bulbs laid in a light frost-proof glasshouse. In the following spring these plants, when danger from hard frosts has passed, should be planted out as before, allowing a little more space between them, and the same sort of treatment afforded. Under three years of this kind of treatment the plants will have reached a size that will fit them for vases, &c. When once the flowering habit has been obtained it is an easy matter, with annual top-dressings with loam and manure, to keep them in health and floriferousness for many years, with an occasional thinning of the growths. *F. M.*

SOCIETIES.

BRITISH GARDENERS' ASSOCIATION.

MAY 29.—The third annual general meeting of this association was held on this date in the Essex Hall, Strand, W.C., under the presidency of the chairman of the association, Mr. W. H. Divers. There was present a company of about 80 members. The original intention to hold a conference at the close of the ordinary business was abandoned, the whole of the time being taken up by discussion. The annual report was presented, of which we extract the following:—

"During the past year the association has made steady progress in almost every direction. It has about 1,100 members, a capital of nearly £300, and an established *Journal* of its own.

At the same time the executive council would be glad if the gardeners of the United Kingdom could be brought to realise without delay the desirability of joining an association that has been established solely in their interests.

The executive council wishes to call the attention of members to the fact that journeymen and apprentices over 15, and under 20 years of age, may now join the association on the following conditions:—

(i.) That they have had at least one year's practical experience in some recognised branch of gardening at the time of application.

(ii.) That such application be accompanied by a testimonial as to ability and character from a horticulturist recognised by the British Gardeners' Association.

(iii.) That a registration fee of 1s. 6d. be paid, and an annual subscription of 1s., until such junior members become fully qualified members in accordance with rules 25 and 26.

(iv.) Junior members may attend all open meetings of the association, but shall not be entitled to vote.

The executive council recognise the desirability of instituting some commendable form of examination by which not only the professional experience and ability, but also the general education of the younger gardeners who wish to join the association will be tested.

The executive council has rejected several applications for membership from men who were obviously unqualified. By this means the association is being gradually built up into a body of competent gardeners.

The association has every reason to congratulate itself on the fact that at least one important public body—the Cardiff City Council—has recognised the value of having qualified gardeners in its parks and gardens, and that possession of the certificate of the association is regarded as a proof of professional training.

The executive council have considered the question of having a paid secretary, and will be prepared to recommend the appointment when the funds of the association permit.

The attention of the members is called to the first number of the *Journal*. For the present, at least, this is to be a quarterly publication. In the future, however, hopes are entertained that the resources of the association will be sufficient to warrant the regular publication of a monthly journal."

Mr. Divers, referring to the report, considered it generally encouraging, there being nearly 1,100 members. The question of a special certificate was deferred for the present, but it was occupying the attention of the executive council, and they hoped to procure a suitable design in the near future. He complimented the members on the appearance of the first number of their *Journal*, and he believed it to be a medium capable of doing much good for the cause. It was a band that would further unite the members, afford them a means of expressing their views on the policy of the association, enable them to ventilate their grievances, and he hoped it would not only voice their complaints, but also their expressions of loyalty to employers who were honest in the treatment of their employes. The report, together with the financial statement, which showed the society's assets to be £313 6s. 7d., and no liabilities, were adopted.

The action of the executive council in appointing a president without consulting the members was challenged. The secretary pointed out that under the rules power is granted the

council to carry out anything that is for the good of the association and not contrary to the rules. On a motion being presented to test the feeling of the meeting in this matter, only the proposer and seconder voted, and the matter was dropped.

Mr. E. F. Hawes, the treasurer, appealed for help to defray the expenses of the *Journal*, and he urged the present members to induce others to join the movement. The financial position was good, and next year he hoped it will be better.

Mr. W. Watson urged a more progressive policy for the association. There were plenty of gardeners' grievances needing redress, and he would like to see the sword drawn on their behalf. The society had done little for gardeners in the three years of its existence, and he was afraid it was because there were timid persons connected with the association. To such he would say, sever your connection with us. The progressive section might be compelled to start afresh if nothing was to be done to remedy grievances.

Mr. Purdham declared that the association was drifting away from the objects for which it was inaugurated, and that its present policy was not nearly strong enough on the side of the worker. Nursery employes in a district of North London are enquiring how to form an association. They would not join the British Gardeners' Association because its policy is not sufficiently progressive.

The secretary (Mr. Weathers) replied that at the instigation of those same men a meeting was inaugurated by him, and advertised to take place. It was not attended, and the presence of a deputy to record their names was a sufficient deterrent to prevent them attending.

At this stage it was decided to postpone the holding of a conference, and to utilise all the remaining time in discussion.

Mr. W. Watson next proposed the appointment of a paid secretary who would devote all his time to the affairs of the association. They were in a position to do this, as they had a balance of over £300 in hand, and his advice was spend as you go on, and money would follow as the result of the secretary's work and influence. It is impossible for the present secretary to do the work properly and thoroughly. His proposal was: This meeting instructs the executive council to proceed at once to appoint a paid secretary. Mr. Lyne seconded the motion.

Mr. Pearson thereupon advised the meeting to leave this matter for the consideration of the executive council, who were just as anxious as the members then assembled to take this step when circumstances were sufficiently favourable.

As an amendment it was proposed that the council be asked to again consider the question of a paid secretary. This amendment was carried by a majority of four votes.

Mr. Weathers was again appointed hon. secretary, and Mr. Hawes was re-elected hon. treasurer.

The gentlemen nominated for the executive council were elected, including Mr. Watson, Kew, and Mr. Lewis Castle was afterwards elected by the meeting to fill a vacancy.

BATH AND WEST AND SOUTHERN COUNTIES.

JUNE 5, 6, 7, 8, & 10.—This society's agricultural exhibition at Newport surpasses any of the previous shows held under its auspices.

Viscount TREDEGAR, Tredegar Park, Newport (gr. Mr. Bone), shows a group of well-grown stove and greenhouse plants, conspicuous subjects being *Caladium* in variety, *Palms*, *Acalypha hispida*, *Clerodendron fallax*, *C. Thomsonæ*, *Carnations*, *Lilium longiflorum*, &c.

Messrs. J. CYPHER & SONS, Cheltenham, have a group of stove plants, Orchids, and *Hippeastrums*, the *Hippeastrums* being remarkably vigorous in growth.

Messrs. GEORGE PAUL & SON, Cheshunt, have a fine display of Roses, including such beautiful varieties as Lady Gay, Snowstorm (a new white polyantha variety), David Harum, and Rosalind.

Pelargoniums in their various sections, together with hybrid Oriental *Poppies*, *Solanum Wendlandi*, and cut herbaceous flowers have been sent from Exmouth by Mr. W. GODFREY.

Messrs. CRIPPS, LTD., Tunbridge Wells, Kent,

have groups of well-coloured Japanese Maples and other foliage shrubs, interspersed with climbing varieties of Roses.

Messrs. HEATH & SON, Cheltenham, send *Pelargoniums*, *Gloxinias*, Orchids, and *Carnations*.

Messrs. J. GARAWAY & CO., Bristol, stage Roses, Lily-of-the-Valley, *Schizanthus*, &c.

Messrs. R. VEITCH & SON, Exeter, are showing a collection of shrubs, Alpine, herbaceous, and greenhouse plants, including *Rehmannia angulata*, *Primula japonica*, *Hydrangeas*, *Lupinus*, *Kalanchoe* x *kewensis*, *Gerbera Jamesoni*, *Kalmia latifolia*, *Enkianthus campanulatus*, *Incarvillea Delavayi*, *Cytisus purpureus*, &c.

A superb collection of *Rhododendrons* is seen from the nursery of Messrs. JOHN WATERER & SONS, Bagshot, Surrey. The collection includes such standard varieties as Pink Pearl, Baron Schröder, Lady Eleanor Cathcart, Marquis of Waterford, F. B. Hayes, and B. W. Currie.

Messrs. COOLING & SONS, Bath, have a fine mixed collection of flowers, which includes many Roses and *Carnations*. Among the Roses are choice examples of Philadelphia Rambler, Lady Gay, Blush Rambler, Mrs. W. J. Grant, and Austrian Copper. The group also contains hardy Azaleas, Japanese Maples, tricoloured *Geraniums*, and the blue double-flowered *Lobelia Kathleen Mallard*.

Tuberous *Begonias*, both single and double-flowered, are well shown by Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath.

Mr. CEDARS, the Hardy Plant Nursery, Wells, has staged a group of *Clematis*.

Messrs. W. CUTBUSH & SONS, Highgate, have a well-arranged collection of Roses, *Carnations*, *Ericas*, *Richardia Elliotiana*, *Palms*, &c.

Messrs. R. WALLACE & CO., Colchester, show *Spiræas* Queen Alexandra and Peach Blossom, *Eremurus*, *Ostrowia magnifica*, *Poppies*, *Lilies*, *Pyrethrums*, and numerous other hardy plants.

Mr. WALTERS, Nurseryman, Bath, exhibits Roses, *Clematis*, perennial plants, and a pretty rose-coloured *Mesembryanthemum* with flowers 2½ inches across.

Mr. W. TRESEDER, The Nurseries, Cardiff, exhibits a collection of well-grown *Conifers*, Roses, &c.

Mrs. WILLIAMS, Bryn Glas (gr. Mr. J. Duff), has a group of well-grown herbaceous *Calceolarias*.

The Forestry exhibits comprise examples of pruning, showing good and bad methods, and the results; injuries caused by insects, fungus diseases, and wind and snow; sections of timber; photographs of forest and nursery planting; large trees, &c., creosoted wood, gates, fences, posts; seedling trees in various stages of growth, cut specimens of *Conifers*, rough and polished sections of timber, and many other things.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MAY 16.—Committee present: E. Ashworth, Esq. (chairman), and Messrs. Sander, Ashton, Parker, Cypher, Stevens, Thompson, Thorp, P. Smith, H. H. Smith, Ward, Warburton, Cowan, Walmsley Duckworth, Williamson Rogers, Upjohn, and Weathers (hon. sec.).

This occasion was the annual general meeting of the society, and the report of the past year's proceedings showed the society to be in a good position. The honours of the session went to W. THOMPSON, Esq., of Stone, who gained the "Sander Cup" for the greatest number of points for the year. In the coming session, 1907-1908, trophies are to be competed for, viz.:—W. Thompson, Esq., offers a Cup, value £15, for the highest points gained during the session; also a Cup, value £5, for the second highest, with money prizes for the growers. Messrs. Sander and Sons (who generously contributed last year's "Cup") offer a "Sander Cup" for *Cypripediums*, under certain easy conditions. Messrs. H. Low & Co. also offer a "Cup" for *Lælias* and *Cattleyas* (hybrids excluded).

The society is growing rapidly, and there is a great amount of enthusiasm amongst the members.

H. WHATELEY, Esq., Kenilworth, exhibited a few good varieties of *Odontoglossum crispum*, one of which, *Odontoglossum crispum* var. "Kenilworth Beauty," received an Award of Merit.

Mr. J. ROBSON, Altrincham, exhibited a number of good plants. A First-Class Certificate was awarded to *Cattleya* × *Thayeriana* var. *alba* in this group: the plant is a hybrid between *C. intermedia* var. *alba* × *Cattleya Schroderae* var. *alba*. *Odontoglossum crispum* var. "Queen of Spain" was given an Award of Merit.

A similar award was also given to *Odontoglossum vexillarium* var. *Robsoniae* and to *Odontoglossum* × *Rolfæ* × *O. crispum* var. *Grairianum* in Mrs. ROBSON's collection.

Mr. W. SHACKLETON, Bradford, exhibited a good form of *Cypripedium niveum*, the plant receiving an Award of Merit.

Mr. JOHN STOTT, Radcliffe, sent a good plant of *Calanthe veratrifolia*.

E. ROGERSON, Esq., Manchester, was granted an Award of Merit for *Odontoglossum crispum* var. *Rogersonæ*, and a similar distinction was given to his *Odontoglossum* × *fascinator* var.

R. L. OVERTON, Esq., Neston, exhibited two good forms of *Lælia purpurata*.

Messrs. CYPHER & SONS, Cheltenham, gained an Award of Merit for *Cattleya Skinneri* var. *Fairy Queen*, a beautiful pale form of the type.

W. BOLTON, Esq., Warrington, staged a choice group of plants, for which a Silver Medal was awarded. A very beautiful variety of *Odontoglossum* × *loochristense*, called *Boltoni*, in this exhibit, received an Award of Merit.

Messrs. LOW & CO. were given Awards of Merit for *Lælia-Cattleya* × *Dominiana*, Low's var., and for *Cattleya* × *Parthenia* var. *Prince of Wales*. P. W.

Obituary.

SIR DIETRICH BRANDIS.—The death of this distinguished scientist is announced, at Bonn. He was a son of Dr. C. A. Brandis, Professor of Philosophy at Bonn University, and was born in 1824. He received his education at the Universities of Copenhagen, Göttingen, and Bonn. In 1856 he was appointed Superintendent of Forests in Pegu; and he was Inspector-General of Forests to the Indian Government from 1864 to 1883. From 1887 to 1896 Mr. Brandis was closely associated with the forestry course in connection with Cooper's Hill. He was knighted in 1887.

F. Q. LANE.—We learn with much regret of the death on the 2nd inst. of Mr. Frederick Quincey Lane, head of the firm of Messrs. H. Lane and Son, of the Nurseries, Berkhamstead. Mr. Lane, who was a genial and much-respected member of the trade, was a son of the late Mr. John Edward Lane, who died in July, 1889, at the advanced age of 82 years, and grandson of the Mr. Henry Lane who founded the business, retired into private life about 1853, and died in July, 1865, at the ripe age of 88 years. Mr. Lane's brothers pre-deceased him, but he leaves some sons to carry on the nursery business, which for many years was specially famed for the high cultivation of Roses, Rhododendrons, Muscat Grapes, and fruit trees.

ENQUIRIES AND REPLIES.

MICE ATTACKING LILIES.—Can any reader say what is the best course of action to pursue? We have 15 to 20 kinds of Lilies growing in a wood, and field mice are destroying them at their flowering period entirely. They climb up the stalk, eat all the leaves, and bite off the shoot. Is it a common case? B. L.

ANSWERS TO CORRESPONDENTS.

ASSOCIATE OF THE ROYAL HORTICULTURAL SOCIETY: A. E. J. Apply to the secretary, Rev. W. Wilks, Royal Horticultural Hall, Vincent Square, Westminster.

CALCEOLARIAS MALFORMED: E. P. D. & Sons. The flowers exhibit peloria; it is a common occurrence for these flowers to assume such abnormal forms.

CATERPILLARS ATTACKING LIME-TREES: J. R. The leaves are attacked by the caterpillars of the "winter moth," *Cheimatobia brumata*. Your trees are of such a size probably as to render hand-picking impracticable, in which

case the only remedy you can adopt is spraying with some poisonous wash; the best is acetate of lead, 2½ ozs.; arsenate of soda, 1 oz., thoroughly dissolved and mixed in 10 gallons of water. Spray the trees next spring with the same mixture soon after the buds have opened, but if the trees are too large for effectual spraying, place early in October grease bands around the stems of the trees as is done in the case of Apple trees.

CLIMBING ROSES: J. H. Harm does not always result from the use of galvanised wires, if the shoots are not tied too tightly to them.

CUCUMBERS FAILING: F. H. The injury has been caused by an excess of water in the soil, aided, probably, by overfeeding with artificial fertilisers. There is no disease present due to fungi or insects.

DUTCH GARDEN: M. L. We know of no special work on this subject, but you will find all the general principles regulating the construction of such a garden in *The Art and Craft of Garden Making*, by Thomas Mawson, price 86s.; a less voluminous work is *The Book of Garden Design*, by Charles Thonger, price 2s. 9d. Both works can be obtained from our publishing department.

GOOSEBERRY PLANTS FAILING: Temple Hill. There is no fungus disease present; the cuttings was formed from wood that was too old for this purpose, and few if any roots have formed in consequence.

GRAPES SPOTTED: A. E. P. The berries are affected with the spot disease. See answer to H. C. in our last issue.

GRUBS DEVOURING PLANTS: W. R. P. The insects attacking your plants are specimens of the flattened snake millipede or "Galley worm," *Polydesmus complanatus*. They are very destructive pests and very difficult to destroy. Insecticides have not much effect upon them, but you might try watering the soil freely with a strong solution of nitrate of soda, or common salt. They can be trapped by burying small slices of Turnip, Mangel-wurzel, Potato, &c., just below the surface of the soil. A more certain method of destruction is to dress the land with gas lime and then to allow it to remain fallow for a period.

INSECT: E. B. The insect you send is by no means uncommon, and is a specimen of one of the Longicorn beetles, *Clytus* species. This beautifully-marked insect is often found on flowers, particularly members of the Umbelliferae. The grub lives in the wood of posts, palings, &c.

LEAN-TO FERNERY: Hodshill. The best arrangement possible in the circumstances would be to prepare a ground plan, showing an irregular pathway through the house in conjunction with bays of an informal character on each side. The pathway could terminate at 8 feet from the end farthest removed from the door or any convenient distance that may be desired. By adopting such bays or recesses a very considerable frontal surface would be available for planting, and in the lower ledges or pockets many of the small-growing species could be accommodated, while reserving the summit and the prominences formed by the bays for plants of larger growth. This arrangement if carried out in detail would necessitate the forming of a considerable number of pockets for the plants, as the sides or front portion would not be suitable for plants of the larger growing species. By so arranging two bays or recesses at the back portion, that the pathway will penetrate towards the wall, all the plants will be well under the control of the cultivator. We do not know whether you have decided upon the species you intend to cultivate, but upon this decision must depend to a large extent the size of the necessary pockets. In any case it is important that all pockets intended for plants should be charged with soil to their very base, otherwise the water might pass away without benefit to the plants. By arranging pockets with the stones, in place of using pots, the pockets could be filled with suitable soil as in potting, but it may be necessary to fix the stones together with cement to ensure stability. You could so arrange the larger pockets that they would constitute receivers for large pots, the latter to be quite hidden from view. Such arrangement would have its advantages when potting time

came round, and in that way any plant could be attended to at any time. Success may be obtained, however, from the planting-out method if this be rightly carried out. You do not say what kind of stone you propose using, but we suggest "tufa" unless you can get some weathered limestone in your own district.

LILAC LEAVES INJURED: C. E. No fungus is present; the injury has been caused by frost.

MELON PLANT INJURED: T. M. The brown spotting has been caused by scorching. Admit more air to the structure in which the plants are growing and keep the atmosphere rather less moist.

NAMES OF FRUITS: A. E. G. *Photinia japonica*; the Loquat or Japanese Quince.

NAMES OF PLANTS: R. O. Y. 1, *Odontoglossum Wallisii*; 2, *O. blandum*; 3, *Oncidium maculatum*; 4, *Ada aurantiaca*; 5, *Cœlia Baueriana*; 6, *Brassia maculata*.—E. 1, *Heuchera sanguinea*; 2, *Anchusa italica*; 3, *Allium neapolitanum*; 5, *Spiræa Anthony Waterer*; 5, probably *Metrosideros floribunda*—send when in flower; 6, *Allium neapolitanum*.—Wolf. 1, *Spiræa confusa*; 2, *Olearia Haastii*; 3, *Taxus baccata* (Yew).—F. R. 1, *Pernettya mucronata*; 2, *Saxifraga umbrosa serratifolia*; 3, *Antennaria tomentosa*; 4, *Aubrietia Campbellsii*; 5, *Scilla peruviana*; 6, *Begonia semperflorans gigantea*.—H. & Co. *Alyssum* (*Königa*) *maritimum*.—G. S. J. *Odontoglossum triumphans* and *Odontoglossum crispum*. The "Tea tree" *Lycium chinense*. We do not undertake to name varieties of Roses.—E. C. D. *Saxifraga granulata*, double-flowered variety.—C. W. *Cytisus racemosus*.—C. E. F. *Aerides falcatum*.—B. P. 1, *Berberis stenophylla*; 2, *Spiræa confusa*; 3, *Spiræa ariæfolia*.—F. E. A. 1, *Cotoneaster frigida*; 2, *Ulmus campestris* var. *viminalis*; 3, *Cydonia* (*Mespilus*) *vulgaris*; 4, *Weigela rosea*.—C. P. *Lepidium Smithii*.—A. B. 1, *Iris germanica*; 2, *Scilla peruviana*; 3, *Asphodelus ramosus*; 4, *Phlox canadensis*; 5, *Veronica spicata*; 6, *Saxifraga hypnoides*.—D. R. 1, *Scilla peruviana*; 2, *Veronica gentianoides*.—M. 1, *Eriobotrya japonica*; 2, *Anthericum liliastrium*; 3, *Jasminum revolutum*; 4, next week; 5, *Asphodelus ramosus*; 6, *Weigela hortensis rosea*.—J. C. B. *Schinus Molle* (Pepper-tree).—Z. Y. X. 1, *Akebia quinata*; 2, *Maurandya Barclayana*; 3, *Spiræa callosa*; 4, *Euphorbia Lathyris*.—J. S. A. *Pteris longifolia*; B. *Adiantum concinnum*.—Fresco. 1 and 2, *Cystopteris bulbifera*; 3, *Polypodium vulgare cambricum*; 4, *Lastrea spinulosa*; 5, *Cystopteris montana*; 6, *C. fragilis*. It is very difficult to name dried barren fronds of Ferns. Fresh fronds, both barren and fertile, should be sent whenever possible.—C. E. A. 1, *Saxifraga pyramidalis*; 2, *S. hypnoides*.—F. G. C. *Prunus* (*Cerasus*) *pseudo-Cerasus flore pleno* (double-flowered Cherry).—L. & Son. We cannot undertake to name varieties of Spanish Iris with certainty. The one you send may be *Avalanche*.

PEACH LEAVES INJURED: J. S. The brown markings are caused by the shot-hole fungus—*Cercospora circumscissa*. Burn all the fallen leaves and spray the trees with ammoniacal solution of copper carbonate at intervals.

PEACH MILDEW: H. W. The fruits are attacked by a fungus—*Oidium leucoconium*. Syringe the trees with a rose-red solution of permanganate of potash.

PELARGONIUMS: J. Mc. The plants have received some check. They will probably grow out of this condition later.

YELLOW WALLFLOWER: A. S. All the varieties of Wallflowers are fragrant; apply to a nursery firm who makes a speciality of these flowers.

WORMS ON STRAWBERRY LEAVES: B. H. M. The thread-like worms are a species of *Gordius*, a genus of Annelida. Their common name is hair eel.

COMMUNICATIONS RECEIVED: F. H—E. B—C. J—E—J. R.—W. R. P.—J. A. W.—J. F.—J. F. S.—A. R.—J. J. F.—G. J. Ingram—H. M. Veitch—W. Bull & Sons—R. D. N.—J. W. & Sons, Ltd.—Roy. Botanic Soc.—F. S.—A. D.—F. M.—A. & B.—R. T. D. G.—W. E. B.—R. H. C.—I. L. R.—H. C.—R. T. H.—J. Collingridge—J. A. A.—W. A. C.—F. W. J.—G. T.—F. J. H.—H. A. W.—J. P.—G. S. S.—W. H. D.—A. D.—A. Worsley—F. M. W.—A. J. H.—H. S.—W. W.—H. J. C.—S. F. & Co.—S. W. F.—O. Thomas—R. L. C.—J. M.—H. G.—W. H. G.—H. J. W.—F. J.—T. B.—D. A. B.—P. B.—J. D. H.—F. E. S.—W. T.—S. P.—E. D. L.—B. L.—T. Smith—Sir E. L.—G. W.—C. B. L. S.



THE Gardeners' Chronicle

No. 1,068.—SATURDAY, June 15, 1907.

CONTENTS.

Agaves, a disease of ...	369	Rhododendron, a hardy yellow-flowered ...	369
Alpine garden, the—		Rhododendrons in Kew Gardens ...	366
Primulas, some hardy	379	Rhododendrons at the Royal Botanic Gardens ...	368
Apple "Apfel Aus Lunow" ...	384	Rose "Paradise" ...	380
Camellia, the hardness of the ...	389	Rubus shoots in winter	388
Canada, fruit prospects in	387	Schizanthus at Cote House Gardens ...	389
Choisya ternata ...	388	Sequoia sempervirens	390
Colonial notes—		Shells, crushed, as plant food ...	389
Grenada ...	388	Societies—	
Conifers, the drying and preserving of ...	396	Debating ...	394
Country garden, the ...	377	Royal Botanic ...	393
Electricity and the vine	388	Royal Horticultural ...	391
Fruit pests, two neglected ...	379	United Horticultural Benefit and Provident ...	394
Fruit prospects in Mid-diesex ...	384	Slugs ...	389
Gladiolus atro-violaceus	379	Soils, the influence of bacteria in	386
Manure for Carnations	396	Strawberry Kentish Favourite ...	389
Masters, the late Dr., botanical works of ...	377	Trees and shrubs—	
Mice attacking Lilies ...	369	Douglas Fir and its varieties ...	381
Obituary—		Viburnum utile ...	381
Cannell, E. A. ...	386	Vegetable productions of Bulgaria ...	388
Onion crop in California, the ...	368	Wanstead Park ...	388
Orchid Notes and Gleanings—		Watsonia Ardeni ...	389
Arpophyllum giganteum ...	378	Week's work, the—	
New species in Kew Bulletin ...	378	Flower garden, the ...	385
Phlox subulata lilacina	388	Fruits under glass ...	384
Picea morindoides, cones of ...	388	Hardy fruit garden ...	384
Primula x Unique ...	390	Kitchen garden, the ...	384
Propagator, the ...	382	Orchid houses, the ...	385
Rosary, the ...	382	Parks and gardens ...	385
Rambler Roses ...	382	Plants under glass ...	385
Rose-rust fungus ...	386		

ILLUSTRATIONS.

Choisya ternata flowering in Fir Grange gardens, 382;	387
a flowering spray of ...	378
Gladiolus atro-violaceus ...	388
Phlox subulata lilacina growing on a rockery ...	391
Primula pulcherrima flowering in a nursery border ...	390
Primula x Unique ...	390
Rhododendron "Dell" in the Royal Gardens, Kew (Supplementary Illustration)	380
Rose "Paradise" ...	380

THE COUNTRY GARDEN.

THE massing of tender plants into small and formal beds is falling more and more into disfavour. As patches of colour, we are bound to say such beds were well and good; but, fortunately, mere masses of bright colour arranged in heart, crescent, lozenge, or other forms are failing to satisfy those who are sufficiently interested in their flowers to require of them more than that they should supply mere displays of colour.

The beds are there; they must be filled. The orthodox bedding plants fill them with as brilliant a display as anything would produce. There is no gainsaying the first and second of these statements—the beds exist in most gardens, and they need filling; from the last, however, I dissent.

The gist of the matter is to find a treatment that shall make a practical and effective alternative to the old one, and I never saw the puzzle better solved than in an old country garden where the parterre—which dates from a singularly uninteresting period in the history of English gardening—was transformed into a particularly

beautiful Rose garden. For the larger and bolder beds it became necessary, or, at any rate, advisable, to run two or even three of the small conventional beds into one. Thus, at the corners, two small circles and one square were at each corner transformed into a simple effective bed that I can best describe as of kidney shape. There is a good deal to be said for this particular shape; if large enough, it is never assertive nor aggressive. It goes without saying that an alteration such as I am suggesting reduces the grass area to a certain extent, for I am speaking of beds cut in grass; but that is not necessarily to be regretted, especially as the whole character of the position changes with the use of Roses in the place of bedding material.

I have chosen this subject for the present article for two reasons. First, because if any such change is eventually to be made, the various considerations as to the position, size, shape of beds, &c.—so far as these have to be determined in relation to background and general setting—will be made far more easily and effectually in the mind, when the background and setting are clothed in their summer foliage, and the surrounding beds have their plants at their summer heights. We cannot afford to leave out considerations such as these when contemplating alterations—the surroundings of a position count for much. Secondly, I have chosen this subject because, if the Rose bushes are desired, we have in the immediate future the most favourable time for budding, or, if we desire specimens on their own roots, then for rooting cuttings. I know many never think of putting in cuttings until October, but I often find these early specimens root very quickly, and practically six months is thus saved, because cuttings put in during the late autumn frequently do not root until spring.

Strenuous efforts should be made to prolong the flowering season of the rock garden as long as possible. There is no other decorative feature that is so telling as this. It goes far to break the monotony of beds and borders. It is distinct, and it gives character. Too often the display is practically over when the Aubrietia, the Saxifragas, Alyssums and other brilliant spring-flowering plants have ceased to flower. We ought, as a matter of fact, to pay especial attention to planting sufficient subjects to make a really decorative effect in late July and throughout August. For glowing radiant colour I know nothing that I can recommend with greater confidence than *Potentilla nepalensis*. It is a host in itself; and, if I may say so, furnishes a wider space by far than it covers. *P. alpestris*, with yellow flowers, is valuable, and so also is *P. nitida grandiflora*, with rose-pink blossoms. Indeed, many of the rock-loving *Potentillas* may be made a distinct feature late in the summer.

For this same late season *Prunella Webbiana grandiflora* is remarkably showy, and intense in colouring, and it is wonderful how effective is even a small patch of colour that is vivid and brilliant over and above the majority of flowering plants in proximity to it. The late-flowering *Gentians* have this same excellent quality, that of possessing colours that remain effective for a very considerable distance. *G. arvernensis*, *G. purpurea*, and *G. septemfida* are all choice and beautiful subjects. I may add that all the plants

I have mentioned flower simultaneously. I keep a notebook to jot down the flowering time of plants. My notes for all these are dated August 3rd, and at that time most of them are at the height of their flowering, so that they, when used in conjunction, really make the rock garden almost as showy and effective as during the spring-time. *Practical Gardener*.

BOTANICAL WORKS OF THE LATE DR. MASTERS.

DR. MASTERS was a prolific writer in many branches of botany, beginning, like most of us, with the British Flora. The earliest article of which we find a record is "On the Arrangement of the Air-cells in Aquatic Plants," in *The Ashmolean Society's Proceedings*, 1853, vol. iii., pp. 16-19. This we have not seen, but it was followed by a note on Kentish plants (*Phytologist*, 1855, vol. i., p. 189), in which the following characteristic sentence relating to plant-life, occurs:—"Those who attach so much importance to the physical state of the soil, as determining the growth of certain plants, will perhaps explain how it is that the *Statice Limonium* grows so abundantly in two soils of such opposite degrees of consistency as the chalk in the cliffs about Dover and elsewhere, and the soft mud in which it thrives at Whitstable."

On leaving King's College, Dr. Masters went to Oxford in the capacity of Sub-Curator of the Fielding Herbarium, and during his residence in that city he actively investigated the flora of the neighbourhood, and drew up an analytical sketch, which was published by the Ashmolean Society in 1857. Although only filling an octavo sheet, this little essay was well received, and three pages were devoted to a notice of it in the *Phytologist*, 1857, vol. ii., p. 112. It is an epitome of interesting facts, and a note on *Ophrys apifera* merits reproduction here, although not immediately connected with the flora of Oxfordshire. It runs:—"Writing to my father on the subject of the Bee Orchis, G. Chichester Oxenden, Esq., of Broome Park, Kent, remarks: 'For forty years of my life a certain field on this estate was under the plough; after this it was laid down for grass; and the third year after it was thus laid down, there appeared in it at least a hundred Bee Orchises, more, in fact, than existed in a circuit of five miles round.'"

This was regarded as very extraordinary in those days, and difficult of explanation, but it is now known that seedling Orchids are by no means rare some seasons, and it may be assumed that the very small seed of the Bee Orchis was sown with the grass seed.

Dr. Masters had many special studies: among the earliest was vegetable teratology, and we find a contribution of his to this subject in the same volume of the *Phytologist*. This was succeeded by numerous articles on the same subject in various publications, and culminated in the appearance of his book, entitled *Vegetable Teratology*, in 1869. The continuation of the title, "An Account of the Principal Deviations from the Usual Construction of Plants," affords an idea of the nature of its contents. As a contemporary reviewer stated, it is a collection of facts rather than a statement of theories, differing in this respect from Moquin-Tandon's *Éléments de la Tératologie Végétale*, 1841, and Kirschleger's *Essai Historique de la Tératologie Végétale*, 1845. It was the first work of its kind, and it met with universal acceptance, and it is still unsuperseded in the English language. It was soon out of print, the author's calls in other directions preventing him from preparing another edition; but a German translation, with numerous additions and corrections by the

author, appeared in 1886. In following up the teratological work of Masters, we have got in advance of the march of events, and must now go back a little. His illustrious predecessor, as chief Editor of the *Gardeners' Chronicle*, John Lindley, died November 1, 1865, and Masters was at once appointed, one of his first duties being to write an account of his departed friend. We have only to turn to the pages of the *Chronicle* immediately following the event, to learn how fully and sympathetically he executed this sorrowful task. Then take succeeding leading articles, and we cannot but be impressed with the ability, sincerity, versatility, and open-mindedness of the writer. The following year, 1866, saw the great international exhibition; a great historical event in horticulture, which has not been surpassed in this country up to the present day. The amount of work, obligatory and voluntary, Masters accomplished in connection with the Botanical Conference and the Show is perhaps better known by the writer and Dr. Ed. Goeze, who assisted him in some of the literary and linguistic details, than by any other persons now living. It was almost night and day, and Sunday, too. It was he who edited the voluminous Report of the Proceedings, though his name does not appear on the title-page.

As the visitors' book shows, Masters worked two or three days a week in the Kew Herbarium as early as 1865, when he was engaged describing the Malaceæ, Sterculiaceæ and the Tiliaceæ for Oliver's *Flora of Tropical Africa*, the first volume of which was completed in 1868. He also worked out the Samydaceæ, Loasaceæ, Turneraceæ and the Passifloraceæ for the second volume of the same work, which was published in 1871; and he subsequently elaborated practically the same natural orders for Hooker's *Flora of British India*, with the addition of the Olacaceæ.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ARPOPHYLLUM GIGANTEUM.

A fine inflorescence of this old Orchid, which in the days when prizes were given for 12 or 20 large specimen Orchids, often supplied one of the most beautiful plants in a collection, is sent by Mr. H. Haddon (gr. to J. J. Neale, Esq., Lynwood, Penarth), whose accompanying letter is worth quoting, as it explains the reason why this species often fails to flower in gardens. Mr. Haddon says: "The plant has been here for many years, but it never flowered until now. Last year I removed it to an unshaded corner of the cool-house, and it made fine pseudo-bulbs and leaves, and this year it produced four fine spikes similar to the one I send, and they have been in flower a long time."

The plant is a very robust grower, and will keep in good condition even in an atmosphere which is too warm and "close" to admit of its blooming. A good light and well-ventilated situation, however, are necessary to the production of the flowers. It is a native of Mexico and Guatemala, and was first introduced to the Chiswick Gardens of the Horticultural Society through Hartweg, in 1839. It is recorded that from October to March the plants in their native habitat are occasionally exposed to violent storms, during which the force of the wind is so great that a man can only with difficulty keep on his feet. The flower-spikes are produced from the tops of the pseudo-bulbs, are 10 inches or so in height, and bear densely-set purple and rose-coloured flowers, arranged in erect cylindrical racemes.

NEW SPECIES IN KEW BULLETIN.

The last issue of the *Kew Bulletin* contains the following "Decade of New Orchids," described by Mr. R. A. Rolfe.



FIG. 158.—GLADIOLUS ATRO-VIOLEUS.

(For text see page 379.)

Bulbophyllum dichromum.—Allied to *B. fusco-purpureum* Wight. Flowers in a loose raceme of about 12. Colour bright yellow, with purple lip. An introduction by Messrs. Sander and Sons. Flowered at the Royal Botanic Gardens, Glasnevin.

Bulbophyllum tridentatum.—A rather large-growing species allied to *B. mandibulare*, but with narrow, elongated sepals. Dull yellowish-green and brownish-purple. Flowered with Messrs. Sander and Sons in May, 1902.

Calogyne Mooreana.—Flowers white, with yellow crest, and approaching *C. cristata*. Introduced by Messrs. Sander and Sons, and awarded a First-Class Certificate at the Royal Horticultural Society in December, 1906.

Calanthe burmanica.—Of the *C. veratrifolia* section, allied to *C. Cecilæ*. Flowers mauve-purple, with yellow crest. Native of the Shan States, Burma. Flowered at Glasnevin, 1906.

Cymbidium pumilum.—A dwarf species allied to *C. ensifolium*. Introduced by Mr. Peter Barr through a Japanese nurseryman, and known to be indigenous in Yunnan.

Stauropsis chinensis.—A Chinese species allied to *S. gigantea*. Not yet in cultivation.

Stauropsis luchuensis.—Allied to *S. undulata* Benth., but has yellow flowers spotted with brown. From the Malay Archipelago.

Saccolabium Woodfordii.—Allied to *S. flexum*. Flowers pale vermillion, tipped with brown on the inside of lip. Native of the Solomon Islands.

Cleisostoma secundum.—Introduced by Messrs. Hugh Low & Co. from Burma, and flowered by them in 1890. Flowers rose-pink, with rose-purple front to the lip; racemes one-sided.

Disa Bakeri.—Allied to *D. Deckenii*, Rchb. f. Flowers pink. British East Africa, alt. 2,400 to 3,000 feet.

THE ALPINE GARDEN.

SOME HARDY PRIMULAS.

Primula marginata grandiflora.—Of the very numerous forms of *Primula marginata*, *grandiflora* is decidedly the best, not only because of its larger flowers, but also on account of their soft, yet bright and pleasing colour, which is difficult to describe, but may be called a shade of lilac-purple. The blooms, which are produced in a stout truss, are larger in size than those of any other variety of this species, and the plant itself grows well, although it does not increase rapidly. Many cultivators of hardy Primulas give all the species the same treatment, but there is the greatest difference between the requirements of, say, such a species as *P. marginata*, which is a rock-lover, and which should have a rather dry position, and *P. rosea*, which requires moisture. The plant under notice does well in my garden planted on a dry terrace in a rock-garden, and with a little calcareous matter about it, for the silvery margin of the leaf seems to become clearer and whiter when lime is present in the soil.

Primula rosea grandiflora.—There are several types of this lovely Himalayan species, and these differ greatly in value and in character. The variety named *grandiflora* shows considerable difference in the size and brightness of its flowers. The best I have seen I obtained from an English nursery some years ago as *P. rosea grandiflora*, and which has done very well with me. It is conspicuous for its dwarf habit, and good, compact truss of bright rose-coloured flowers. Two years ago I brought a single plant of some four or five crowns from my old garden to my new one, and I divided it during the early part of the summer, re-dividing it late the following autumn, and again last year. I have given away a few plants and have still a good group, which yielded some 60 inflorescences. It grows in my garden in a low bed, at the base of a portion of my rock garden, and where the surface water from an adjoining path soaks into the bed. The soil is composed of light loam, a

little sand, some old decayed turf, and a very little peat. I believe that this Himalayan Primrose requires frequent division at its roots, and that this treatment results in greater vigour and strength.

Primula capitellata.—Blooming beside *P. rosea grandiflora* in my garden is a good specimen of the comparatively scarce *P. capitellata*, not to be confused, of course, with *P. capitata*, a *Primula* of no great importance. *P. capitellata* has trusses of small flowers of a purple colour and pleasing green leaves, somewhat similar to those of *P. rosea*, but considerably larger. It has proved hardy in my garden for two years. This, according to Pax, is a member of the same section as that to which *P. rosea* belongs, and appears to flourish under the same conditions. It is a native of Armenia, Eastern Persia, and Afghanistan.

Primula involucreta.—This is another Himalayan species of much beauty, and which appears also to enjoy a moist position in a rather peaty compost, but one not absolutely laden with moisture or continually in water. It is placed in the same section by Pax in his monograph as *P. farinosa* and *P. scotica*, but it is quite a different plant from a garden standpoint. Its leaves are light green, and the stem is fleshy. The creamy-white flowers with a yellow eye are produced in clusters. The plant is quite hardy with me, but if it is not top-dressed with a little soil in autumn some little care is necessary to prevent its loss in winter. Its height is about 6 inches.

Primula farinosa.—The exquisite Bird's Eye Primrose, although a native of this country, presents many difficulties in its culture. Last year I saw it in its native habitat on the steep, moist, grassy banks sloping to a mountain lake, and I noticed there were few large clumps, but many scattered plants, probably seedlings, which points to the fact that its period of existence is short even in a wild state. In a garden it is almost impossible to afford the plant the conditions it enjoys in nature, but it can be so grown that a plant of some other kind will shelter its roots from the summer's sun, which on the mountains is done by the grass. Chickweed has been found excellent for this purpose, and I am also trying *Saxifraga cymbalaria*, a purely surface-rooting plant, with the same object. *S. Arnott*.

GLADIOLUS ATRO-VIOLEACEUS

(Boissier).

This little *Gladiolus* from the plains of Syria has been cultivated in botanic gardens for a considerable time. The earliest reference to it I can trace is in the first Hand-list of Herbaceous Plants published at Kew in 1895, wherein *G. aleppicus*, also of Boissier, is cited as synonymous.

It is a pretty plant of comparatively easy culture that one can recommend for the bulb-border, the rock-garden, or for pot culture in the cool house. It has the slender growth of *G. Colvillei*, producing arching spikes 18 inches in height that carry on an average six flowers each, and these measure 2 inches across the expanded flower.

The upper petals are the broadest, and they are somewhat hooded; in colour they are rich violet. The lower or lip petals are faintly pencilled with white or yellow on a violet ground colour. I have had the plant under cultivation for two years, but have not tested its degree of hardiness, but that it grows wild intermingled with the Turkish Corn Flag (*G. byzantinus*) is sufficient to prove that it will be hardy in this climate provided it is afforded a light, warm soil in which to grow. It flowers in May, but one can force it into flower as early as March by gradually raising the temperature of the house in which it is grown.

The species received the R.H.S. Award of Merit when shown by Messrs. R. Wallace & Co., on May 14 last. *J. B. M.*

TWO NEGLECTED FRUIT PESTS

IN my last article (see p. 369) I referred to the fruit pests of the season as noticed in my own plantations; but it seems desirable to refer more in detail to two which are commonly neglected, especially as the damage caused by them is in evidence at the time of writing. One is an insect, and the other a fungus pest. These are the larvæ of the pith moth (*Laverna atra*) and "brown rot" of fruit (*Monilia*, or, as it is now more often styled, *Sclerotinia*) fructigena. The most noticeable symptom of both attacks at this period of the season is the same on off-hand inspection, consisting of the drooping and ultimate withering of fruit spurs and ends of shoots. But if these are dissected, in those attacked by the pith moth a small reddish-brown caterpillar will be found, while the shoots and spurs destroyed by "brown rot" are simply rotten. The withering is generally attributed to frost, though the real causes are more easily identified than they were a few years ago.

In 1898, the late Miss Ormerod said that the attack of the pith moth caterpillar appeared to be very seldom noticed in this country, two reports on it in 1898 being the first she had received. Even in his report on "Orchard and Bush Fruit Pests in 1906," Professor Theobald stated that he had received only one reference to the pith moth, and he added that "Messrs. Newstead, Warburton, and Collinge do not seem to record it in any of their reports." I venture to believe that the reason of this freedom from notice is, not that the pest is not widely prevalent, but that its damage is generally attributed to frost. Certainly it is more the rule than the exception to find many withered trusses of fruit blossom and ends of shoots, including laterals, at the end of May or early in June in any plantation of Apples; and, if this damage is not the result of brown rot or canker, I am persuaded that proper inspection would prove it to be usually attributable to the pith moth.

Let any grower not familiar with the injuries caused by this pest cut off a few withered ends of shoots or fruit spurs, and break or cut them in halves near the tips. If he finds them hollow inside he will only have to pursue the borings made by the caterpillars to find them inside. I have recently cut some thousands of withered ends of shoots and trusses of blossom off trees in a plantation of 5½ acres, and in nearly all that were examined and that were not affected with brown rot, I found the pith moth caterpillar. I cannot suppose that what is so extensive in my orchard is uncommon elsewhere. Besides, I have found the pest only too prevalent in other people's plantations. To some extent, it is to be found in dying buds on other parts of branches than the ends or fruit spurs, if they are cut or scraped off. It is of the utmost importance to cut off and burn the affected parts without delay. The caterpillar will shortly develop into a chrysalis, from which in July the moth will emerge to deposit its eggs on the trees.

As an example of a pest escaping observation for years, or possibly generations after it has become common, the case of the bud moth (*Hedya ocellana*) may be mentioned. In Miss Ormerod's *Handbook of Insects Injurious to Orchard and Bush Fruits*, it is not even named, and when shortly after or before the publication of that work I sent her specimens, she had had some from only one other correspondent. At the present time this pest is known to be widely prevalent. But so it was at the earlier period, as I found it in every fruit plantation which I visited at the time, although not one of the occupiers knew anything about it.

As to "brown rot," it is only the symptoms of the disease in its present stage that are not commonly recognised, as all growers must be familiar with its attack upon the fruit, on which it appears in brown patches, or at least with the mummified Apples which often hang on the trees till those of another season are partly grown. The attack on the leaves resembles that of scab.

Mr. George Masee, in his *Text-book of Plant Diseases*, says but little about the attack of "brown rot" on shoots and fruit spurs, but gives a good illustration of an affected Apple, enabling any reader to distinguish it from scab. He states that the mycelium of the fungus is not permanent in any part of the host, so that every

spring the trees are perfectly free from the disease, and would remain so if not inoculated by spores derived from the affected fruit of the previous season—meaning, it is to be supposed, the mummified fruit. In that case my care in cutting off affected fruit spurs and ends of shoots and burning them may have been superfluous, but, without examination, it cannot be determined whether the withering is due to "brown rot" or to the pith moth caterpillar. Besides, the trusses of withered blossom, and in

As a rule, the trees badly affected with "brown rot" are nearly or quite free from pith moth attack, or the evidence of it. Possibly this is because the rotting result of "brown rot" attack has starved any caterpillars in the diseased shoots or fruit spurs. But I do not find the boring of a caterpillar in any spur withered by "brown rot."

Both pests are extremely and permanently damaging to the trees which they attack, especially in the destruction of fruit spurs. The

described as heroic. Fruit growers have some other work than spraying, though this fact does not seem to be recognised by their scientific advisers. *A Working Grower.*

ROSE "PARADISE."

LIKE many other recent varieties of rambler Roses, the one under notice has been introduced here from America. It was raised by Mr. M. H.



FIG. 159.—ROSE "PARADISE," A NEW RAMBLING VARIETY RAISED IN AMERICA: COLOUR OF FLOWERS PINK AND WHITE.

some cases the fruit spurs, quite down to their bases are rotten, while the rottenness of many of these has penetrated into the branches. It must be important, then, to cut off the affected spurs before their rottenness has gone so low down.

As the result of this disastrously wet season, "brown rot" has developed to an extent never known before in my plantations. It was recently showing very extensively among Apple trees, and to a less extent among Plum and Cherry trees, now cleared of withered parts.

only remedy for the pith moth known to be effective is that of cutting off and burning the parts of a tree attacked by it. As to "brown rot," Mr. Massee recommends, besides the burning of all affected fruit, the drenching of trees early in the spring (before the buds expand) with a solution of sulphate of iron, and, after the buds have expanded, spraying at intervals of ten days with dilute Bordeaux mixture. If he means up to the time when the fruit is mature, or nearly so, the remedy must be

Walsh, Wood's Hole, Massachusetts, and the illustration at fig. 159 has been reproduced from a photograph obtained from the original plant. It is described as a hybrid from *Rosa Wichuraiana*, having single flowers which measure 4 inches in diameter, the petals recurving somewhat when fully expanded. The petals are pink at the margin, the larger portion of the base being creamy-white, whilst the centre of the flower is ornamented by the bright yellow anthers. The variety is already in cultivation in some English nurseries.

TREES AND SHRUBS.

VIBURNUM UTILE.*

THIS new species was recently in flower in the nursery of Messrs. James Veitch & Sons at Coombe Road, Kingston Hill. It was raised from seed collected by E. H. Wilson in Central China, where it is abundant on exposed cliffs in the neighbourhood of Ichang and on northern mountains.

Specimens had previously been collected by Thomas Walters, of the British Consular Service, by General Mesny, Dr. Augustine Henry and others, but prior to their introduction by Wilson, seeds had not been available in this country.

The plant at Coombe Wood is a neat shrub about 4 feet high, with spreading branches clothed with glossy green leaves and numerous cymes of pure white flowers, which latter suggest those of the familiar *Viburnum Tinus*, but they are pure white and the individual florets are larger. The stems are covered with a stellate tomentum when young, but become glabrous when mature, and are said to be used by the Chinese as pipe stems. The leaves are shortly petiolate, thick, lanceolate-oblong or ovate lanceolate, 1 to 1½ inch long by ½ to 1 inch broad, obtuse with an entire margin; the upper surface is glabrous and shining, the lower is covered with a whitish tomentum. The flowers are produced in dense, almost hemispherical corymbose cymes about 3 inches across at the apices of the numerous small branches; the florets are about ½ inch in diameter, campanulate, with rounded and spreading lobes; the short stamens are exserted.

It is an extremely floriferous species, the small plant under notice bearing no fewer than 90 trusses of bloom. No protection has been afforded the plants at Coombe Wood; they are growing in open, exposed positions, so one may conclude it is quite hardy. The glossy leaves, pure white flowers, floriferousness and neat appearance of this shrub will undoubtedly gain for it many admirers. It is a desirable addition to hardy spring-flowering shrubs. *H. Spooner*.

THE DOUGLAS FIR AND ITS VARIETIES.

THERE is no doubt that, if given the proper conditions, the Douglas Fir (*Pseudotsuga Douglasii*) can be more quickly and profitably grown as a timber tree than some of the other forest trees so commonly planted. That it is beginning to find favour in the eyes of the planter is proved by the fact that there is an ever-increasing demand for young Douglas Firs for planting. Some idea of its value is shown by the following extract, referring to a visit to the Durris estate, Lower Deeside, from the *Transactions of the English Arboricultural Society*, Vol. VI., part I., p. 16: "The Douglas Fir of Oregon takes precedence of all other exotic deciduous and evergreen trees and shrubs, and, owing to its free growth, freedom from disease, and wonderful adaptability to a wide range of soils, sub-soils, and elevations, has proved to be a valuable asset to our limited number of commercial timber-trees." Again, on p. 18: "A sawmill was seen at work, where a trunk of Douglas Fir was split up, revealing the remarkable growth of 14 inches of red or hard wood [the serviceable part] in an 18-inch deal."

The value of any timber depends to a great extent upon the quickness with which it can be produced; the proportion it contains of heart-wood to sap-wood; the uses to which the wood can be applied; and the ease with which it can be worked. The Douglas Fir is valuable from all these standpoints: it is a fast grower, eclipsing the Silver Fir (*Abies pectinata*) in this

respect, and this is admirably shown by a photograph of a section of each which may be seen in the No. 3 Museum at Kew. The two trees from which the sections were taken were grown in Ireland on the same kind of soil and under the same conditions of climate. Their age when cut down was about 22 years, and the Douglas Fir was 19½ inches in diameter to the 10½ inches of the Silver Fir. The latter is a quick-growing tree, but the former produced nearly twice as much timber in the same time. The proportion of heart-wood in the Douglas Fir is unusually large, as far as can be ascertained from trees that have been cut in this country, and in addition it is said to be "fine-grained, elastic, strong, heavy, free from knots, very durable, and not liable to warp or split." It is easy to work, takes a high polish, and has a very handsome appearance. Freedom from knots is a great desideratum in timber, as they render wood harder to work, and detract from its appearance and strength.

SOIL AND CLIMATE.

As stated, the Douglas Fir can be grown on almost any soil, and at various elevations, so that it may be said to be suited to practically any part of the British Isles. In growing trees for timber, the character of the sub-soil is of more importance than that of the top-soil, but the Douglas Fir has been grown well on gravel, clay, and practically every sub-soil to be found in the kingdom, with the exception of chalk, and even with regard to calcareous soils it is an open question whether it will succeed or not. In places where the chalk forms the bulk of the sub-soil, and with only a thin layer of humus on the top, the Douglas Fir would probably be unable to succeed, but where it could get through a comparatively narrow calcareous layer into the gravel or clay beneath, it would probably thrive. This question is, however, one which needs experimental planting to decide.

It has occasionally been found that this Fir will make good growth for a few years, and then become stunted and thin for a while, but finally grow freely again. This is due to the presence of an unbroken sub-soil or pan of a hard nature, and one that the roots cannot quickly penetrate, but once they have bored through it they commence to make strong and healthy growth again. If the top-soil is thin and poor, some of the trees may die during a dry summer through lack of moisture at the roots. Where this is the case a little labour expended in breaking the sub-soil when planting will be of benefit. The fact of ground being poor and stony need not deter foresters from planting the Douglas Fir, as this tree will thrive provided it can obtain a sufficiency of moisture. A damp, stagnant soil, however, is fatal to success, a well-drained ground being absolutely essential to the plant's well-being.

The above remarks apply to the so-called Douglas Fir of Oregon, but which is found from Oregon northwards on the western side of North America, both on the hills and in the valleys, where it is stated to attain upwards of 250 feet in height with a diameter of 12 feet at the base. (The largest specimens in this country are somewhat less than half this size.) Being spread over a large extent of country and at different elevations, it is naturally variable in its habit of growth, though not to the extent that might be imagined. If my memory serves me rightly, Professor Sargent found plants only about 3 feet in height on the hill-tops, but whose concentric rings showed them to be about a hundred years old.

THE TYPICAL DOUGLAS FIR

is a tall tree pyramidal in shape in a young state, but becoming more conical with age, with loose, open branches, borne horizontally or

slightly pointing upwards, and very small-wooded in proportion to the trunk that bears them. The leaves are about one inch or so in length, arranged all round the stems, soft to the touch, of a bright green shade above, and marked beneath with two silvery lines. The cones are 3 inches to 4 inches in length, pendent, and they ripen in the first year. The scales are persistent, and each one has a three-lobed bract attached.

VARIETIES.

There are some ten or a dozen varieties that have been named; the following vary but little from the type:—Var. *elegans*, var. *macrocarpa*, var. *Pattoniana*, var. *revoluta*, var. *Stairii*, and var. *taxifolia*. These kinds differ but slightly in habit and foliage, and considerably more variation can be found in a batch of young seedlings, if one studied every slight difference, than there is between these named varieties and the type. The differences amongst young plants consist chiefly in their rate and mode of growth, the typical plant being loose-branched and fast-growing; others are denser and sturdier, while others again are slow-growing and have varying foliage. Forms are also to be noted in which the branches assume a fastigate habit, but practically all these differences disappear with age, with the possible exception of a few dwarf-growing plants.

THE COLORADO DOUGLAS FIR

(P. D. var. *glauca*).

This variety is fairly well known, and has attained some popularity of late years on account of it being recommended as a timber-tree, and also as being hardier than the type. There is, however, no justification for this latter assumption; it is of comparatively slow growth when compared with the Douglas Fir, and it is certainly no hardier. It succeeds in certain parts of the country and yields serviceable timber, but the type grows better in the same time, and is preferable for timber purposes. As a specimen tree for the park or garden, P. D. var. *glauca* is to be recommended, the habit being pyramidal without excessive formality, and the foliage being of a glaucous-blue tint, which becomes deeper and better as the tree gets older. The leaves are 1 inch to 1½ inches in length, rather stiffer and harsher to the touch than those of the type; sometimes curved, but more often pointing forward towards the growing point.

There is a weeping form called var. *glauca pendula*, but it is not of much value, being an irregular-growing tree, with semi-pendulous branches. The weeping Douglas Fir (P. D. var. *pendula*) is a quaint tree with the branches hanging straight down the stem; a well-grown specimen has a picturesque effect in the garden. P. D. var. *nana* is a dense-growing little plant, attaining about 3 feet to 4 feet in height and with foliage like that of the type. P. D. var. *brevifolia* has leaves less than half-an-inch long that are clustered all over the stems, giving the plant a strong resemblance at the first glance to *Tsuga Sieboldii*.

DISEASES AND INSECT PESTS, &c.

The Douglas Fir is not affected by any fungus disease, whilst it is rarely attacked by insect pests, such as scale, &c. It is also free from the attacks of squirrels, so far as I have been able to see and hear.

In conclusion, the common Douglas Fir can be recommended for timber or as a large ornamental tree; the Colorado Douglas Fir is of ornamental value only; while the other varieties have a certain interest as showing the extent of variation from the type. *J. Clark, Bagshot, Surrey*.

**Viburnum (Tinus) utile*, Hemsley. *Index Flora Sinensis*, vol. i., p. 866.

THE PROPAGATOR.

LEAVES EMPLOYED AS CUTTINGS.

In regard to this method of plant propagation, no certain period of the year can be named in which it can be best carried out. The right condition of the leaves of the various species differ in accordance with the treatment of the parent plants. The propagator who is unacquainted with the peculiarities of the plant he desires to increase must find out the most suitable time by experiment; but usually it will be found that a leaf-cutting will make roots more readily and be less liable to decay if used when fully developed and approaching maturity. Leaf-cuttings should be handled with care so as not to bruise them. Some plants possess leaves which will form roots wherever the midrib is cut across, each bit making a plant. Such are Gloxinias, many Begonias, *Rochea falcata*, *Cotyledon*, *Bryophyllum*, *Peperomia*,

are the first to show these close to the base of the midrib.

For the proper directions for the propagation of Carnations, Pinks, Azaleas, Kalmias, Rhododendrons, *Tabernæmontanas* and *Allamandas*, the reader may refer to the article on propagation in the *Gardeners' Chronicle*, June 23, 1906, p. 397.

PROPAGATION BY MEANS OF EYES (BUDS).

This method is practised with such plants as possess large leaves, hard wood, and large, strong buds. The buds must be chosen from one or two-years-old wood, and each should have a healthy leaf attached. The shoot with a good bud must be cut through six or eight lines above and below the bud, and the wood cut away, so that the pith is got rid of, and the wood beneath the bud reduced in thickness to two lines. The buds so prepared must be placed in the usual manner

being furnished with a few rootlets. The method employed may be cleft or side grafting, and after tying in the scion the point of union should be coated with grafting-wax applied in a lukewarm state. After the grafting process, pot them up and place them in a moist atmosphere over a bottom heat of 80° to 85° Fahr.

BUDDING.

The present is a good time for budding Hollies, Roses, Jasmines, Aucubas, &c. It is said that the Banksian Rose forms the best stock for the Marechal Niel Rose. *F. M.*

CHOISYA TERNATA.

Our illustration represents this fragrant white-flowered, Rutaceous shrub from Mexico, as it is at present in bloom at the front of the dwelling-house in the charming garden of W. A. Bilney, Esq., Fir Grange, Weybridge Heath, and which annually produces its show of fragrant blooms there, and in many other gardens in Great Britain. Although known in this country for many years past, it will be within the memory of many gardeners that the species was first cultivated as a stove shrub. The flowers were recommended as a good substitute for Orange blossom, for which purpose they have often been used. The species never appeared at its best until the plants were grown as hardy shrubs, and in such conditions its bright green leaves render it effective even when the plant is not in bloom.

THE ROSARY.

RAMBLER ROSES.

RAMBLER, *Wichuraiana*, and *Penzance* Roses will all submit to gentle forcing, and with care can be had in flower very early in the year, but they must not be subjected to excessive heat, for this will cause their petals to lose much of their colour, and the blooms will be pale in consequence. The plants should be induced to form a good root-system, which should quite fill the pots, and when they are introduced to heat it should be applied gradually, and not until they are accustomed to their new conditions should the temperature be greatly raised. They should be plunged in an old hot-bed where just sufficient heat is provided to start root action. As soon as the new growths develop they should be carefully tied and trained so that the stake or other support will be completely hidden, but when this is accomplished the growths may be allowed to hang loosely and thus show off their blossoms to advantage. Keep the foliage clean by frequent syringings and fumigations, for good foliage enhances the beauty of the flowers. The plants should receive some stimulant as soon as the flower-buds show, but if they possess a weakly root-system and cannot assimilate manures, feeding should be left alone.

Roses on their own roots will force well and will continually increase in size if the requisite attention be given at the time of potting. Roses may be propagated from cuttings of young wood or from ripened shoots in the late summer, but by rooting cuttings of the young wood a season is gained. The following list of varieties of climbing Roses will all submit to forcing:—*Dorothy Perkins*, *Meg Merrilies*, *Hiawatha*, *Lady Gay*, *Crimson Rambler*, *Mrs. F. W. Flight*, and *Queen Alexandra*. All these are good growers, and can be had almost any size in three years from the time of inserting the cutting.

Rambling Roses trained on arches, tripods, old trees, &c., in the open, have a delightful effect in summer time. Amongst some of the



[Photo by John Gregory.]

FIG. 160.—CHOISYA TERNATA IN MR. BILNEY'S GARDEN AT FIR GRANGE, WEYBRIDGE.

and *Achimenes*. The medium in which the leaf-cutting should be set may be sandy soil, finely powdered brick, or pure sand, the more readily decaying subjects being placed in the brick or sand. The propagator should take care to bring the base of the midrib of a leaf-cutting under the surface of the material, and in the case of a leaf cut in several places to lay it on the material, securing it with small hooks at the several incisions in order to bring the midrib at these points close to the sand, &c.

When roots have been made, the plants should be gradually inured to the air of the glasshouse in which they will have to live, and receive the same treatment as that afforded shoot cuttings.

Theophrastus may likewise be increased by means of leaf-cuttings, cutting these in half, sticking both pieces in the soil, and preferably under a bell glass or in a close case with a bottom heat of 80° Fahr. The first shoot arises from the callus-joint just above the roots, which

in small pans of sandy soil covered with a layer of sand, so that the "eyes" rest on the soil, and are then covered about one-tenth of an inch with sand, pressing them firmly and securing the leaves to little stakes, so that the "eyes" cannot shift. They are treated in the manner usual with ordinary cuttings, and must be kept in a moderately moist condition. The following plants may be thus treated: *Pyrus*, *Wistaria*, *Hydrangea*, *Camellia*, *Clethra*, *Magnolia fuscata*, *Pittosporum*, *Vitis*, *Citrus*, *Rosa*, *Chimonanthus*, *Dracæna*, and others.

The corms of *Caladiums* may be cut into as many pieces as there are buds on the corm, and similarly treated.

GRAFTING.

There are various greenhouse and stove subjects which may be grafted at this season—*Aralias*, *Ficus*, *Begonias*—on thick pieces of the roots of the same or allied species, the roots

best varieties for this purpose, with their colours, are *Rosa sinica* anemone (pink), *Aglaia* (yellow), *Dorothy Perkins* (soft pink, a very robust grower), *Annie of Geierstein* (a fine shade of red, one of the best climbing Roses), *Carmine Pillar* (rosy-carmine), *Crimson Rambler*, *Helene* (a seedling from *Crimson Rambler*, with petals a sulphur-yellow colour tinted with rose-violet). The flowers of "*Helene*" are large and double, and as many as 30 to 50 are developed on a single stem; *Alister Stella Gray* (straw-yellow), *Euphrosyne* (pink), *Lord Penzance* (fawn), *Lady Penzance* (copper), *Meg Merrilies* (crimson), *Hiawatha* (scarlet with yellow centre), *Leuchtstern* (bright rose with an attractive white "eye"), *Lady Gay* (deep rose-pink), *Stella*, *May Queen*, *multiflora*, *Reine Olga de Wurtemberg* (vivid red, with lovely foliage), *Thalia* (white), *Una* (one of the finest of all the white varieties), *Rosa sericea* (white), *Queen Alexandra* (rose-pink), *Manda's Triumph* (white and very sweet scented), and *Electra* (yellow buds, changing to a paler shade in the older flowers).

The roots of pillar Roses should be covered

does service in this way. Two other *Polypodiums*, which are somewhat of the same habit, and which also might be put to the same use, are *P. piloselloides*, a native of high elevations, and *P. loricum*, which inhabits an intermediate position—neither so low down as *P. vacciniifolium* nor as high up as *P. piloselloides*. The three species are found here.

CEDRELA ODORATA L.

(The West Indian Cedar.)

THERE is at the present time a brisk local demand for the limited number of these trees found growing here.

I am informed the few that do exist on the island—where doubtless they were introduced and planted a long time ago, as it is questionable whether the species really belongs to the native flora of Grenada—have been bought up by a local merchant, some having already been felled and carted into town for shipment to England. During the tree's flowering period, which occurs about the middle of the year, a peculiar and strong-smelling odour pervades the air, and

THE FIG (FICUS CARICA) IN GRENADA.

It is unusual to hear of a Fig tree producing fruits in abundance on this island, but at Mount St. Ervans, the Rev R. J. C. Wolseley, the Roman Catholic priest of St. Andrew's parish, has succeeded in establishing a tree after a great deal of trouble, and in fruiting it; the fruits being of large size and of first-class quality. The name Fig, or Figue, is given, generally, in the island to the different kinds of Bananas, which, of course, belong to a very different class of plants.

PANICUM FLAVESCENS.

I HAVE noticed that when basic superphosphate has been applied in Cocoa fields in Grenada this grass springs up spontaneously, and to such an extent, that it suggests at once the question as to what has caused so much of one kind of grass to grow to the exclusion of nearly all other weeds. Going through an estate not long ago, one saw at a glance, by the presence of this *Panicum*, where this manure had been put down a few months previously.

POLYTRIS PRÆMORSA IN GRENADA.

IN the parish of St. George this grass has become established in some of the pastures and along the waysides. Swards appear red at the time of flowering, and then the contrast to the surrounding greenery is very marked.

It forms a soft bottom, as well as being a fodder grass of considerable value, for I notice that animals feed upon it with much apparent relish.

Professor Urban informs me that it is only indigenous in Java, near the sea, and is naturalised in the Botanic Gardens at Singapore. How then did it find its way to this island? From enquiries made on the spot, I am unable to say, but it has been noticed for at least 25 years, which would be before the Botanic Station was started here. Large patches of it occur in the Richmond Hill district.

Considering that it makes a thick turf, I should be inclined to recommend it for use on lawns and pastures in the tropics. *W. E. Broadway, The Plant and Seed Nurseries, Grenada.*

PHLOX SUBULATA LILACINA.

PHLOX subulata, the Moss Pink, is a valuable subject for the rock-garden or for places it is desired to cover completely with greenery. It forms a mat-like growth, which, at this season of the year, is almost hidden with numerous star-shaped flowers. It succeeds well on a dry bank, over which it will ramble and flower profusely. The species is a native of Virginia, and since its introduction many varieties have originated, some having white flowers and others flowers of various shades of pink and mauve, &c. *P. s. lilacina* is shown in flower in the illustration at fig. 161.



[Photo by F. Mason Crook.]

FIG. 161.—PHLOX SUBULATA LILACINA GROWING ON A ROCKERY.

with a good mulching of manure several times during the season, and the foliage should be kept clean and healthy. *W. A. Cook, Leonardsllee Gardens.*

COLONIAL NOTES.

GRENADA, W.I.

POLYPODIUM VACCINIIFOLIUM L. & F.

WHERE a bare surface exists which requires screening, such as a wall, or where a tree trunk might be beautified by a covering of some plant growth, this *Polypody* can be recommended.

The thick, reddish-brown rhizomes grow in masses or in clumps together, which renders easy the accomplishment of such a covering. The leaves are not conspicuous for their size as both fertile and barren ones are very small when compared with those of many of the other species of the same genus. In Grenada it thrives at low elevations in the open, as well as in partial shade. It is a pleasing change from the stereotyped *Ficus stipulata* (*F. repens*), that usually

this is especially noticeable at night-time. The timber furnishes a fine cabinet wood, and it is, in addition, very fragrant.

Advertisements appear in the newspapers of the neighbouring island of Trinidad for "*Cedar* logs at the highest market rates."

A DOUBLE WHITE-FLOWERING HIBISCUS.

THIS is a very uncommon plant in Grenada. About two years ago I accidentally came across a solitary weakly-looking plant in a private garden. When I returned a little later on, I was disappointed to hear that it had died, but I was not surprised, owing to its sickly condition. Quite recently I saw a fine healthy plant some 10 feet high of this *Hibiscus* in a poor man's garden, and the owner informed me it was known as the "*Halifax*." From it I obtained cuttings, several of which are now flowering, although the plants are not more than from 8 inches to a foot in height. Its sturdy habit, and the purity of its large white flowers, which are produced in profusion, render it a most useful garden subject.

RHODODENDRON SHOW IN THE ROYAL

BOTANIC GARDENS.—Messrs. JOHN WATERER & SONS, LTD., Bagshot, opened their annual exhibition of *Rhododendrons* in the Royal Botanic Society's Gardens, Regent Park, on Monday last. The area enclosed within the tent is one-third of an acre, and the effect is brilliant. About 2,000 *Rhododendrons* of various sizes from 2 feet to 10 feet or more in height are used in making up the various beds, which are laid out in much the same way as they would be planted in private gardens. From 200 to 300 different varieties are shown, amongst them being the best of the older kinds and also most of the novelties of merit, such as *Pink Pearl*, *Mrs. Stirling*, *Gomer Waterer*, and others.

NOTES FROM ISLEWORTH. FRUIT PROSPECTS.

GROWERS in W. Middlesex will again experience a somewhat disappointing season in the orchard, the more disappointing as the promise at the end of April was so exceptionally good. The great fluctuations of temperature during May caused the trees to shed half their crop, and it now seems as though the only crop above the average will be that of cooking Plums. Apples generally will yield about half a crop, Pears about one-third of a crop, and Plums three-quarters.

On the contrary, all small fruits promise well, and Black Currants will be exceptionally plentiful. There is a record set of Apricots on wall trees, and a very fine show of Peaches, Nectarines, and Morello Cherries on similar trees. The season will be a good one for those few who grow Apricots, Peaches and Nectarines as bush trees, for this year remunerative crops should be secured, and this does not occur more than once in about eight years.

There will be a great shortage of the best class of dessert Pears, Apples, and Plums.

Wall fruit is not included in the following estimate, nor trees that have been protected. The figure 100 represents the maximum crop that should be left on the trees after thinning, so that the figure 70 may be taken as about the average crop over a series of years.

Apples.—Cooking varieties, 75; (Prince Albert, 75); dessert varieties, 25; (Cox's Orange Pippin, 15; Ribston Pippin, 50); various dessert sorts, 50.

Pears.—Dessert varieties, 12; (Marie Louise, 10; Doyenne du Comice, 15); various dessert sorts, 55; cooking varieties, 40.

Plums.—Cooking varieties, 160; Damsons (results still doubtful), 20; (Coe's Golden Drop, 15); various dessert sorts, 15 to 70; Greengages, 100; Jefferson's, doubtful.

Cherries.—Sweet sorts, 55.

Apricots.—Moor Park, 55.

Peaches and Nectarines.—80.

A. Worsley, Isleworth.

FRUIT REGISTER.

APFEL AUS LUNOW.

LONG-KEEPING Apples are not too numerous, and one that is edible from the month of January till August is an acquisition of the first order. The variety is given in the German name as above (Apple from Lunow), and is highly spoken of by Hrn. BRETT-SCHNEIDER in the *Gartenflora* for May 1 as a pleasant fruit for the dessert. The blossom is large, 5 cm. in diameter, with shell-like petals, which do not touch each other; strong fruit buds with long, fleshy envelopes; petals pale pink with darker veins. The diameter of the Calville-like fruit is about 10 cm., the height 9.5 cm.; the shape conical, the greatest circumference being about one-third distant from the stalk, which is set in a deep, smooth cavity. Towards the eye the diameter decreases sharply. The fruit is ribbed smoothly and possesses a regular form. The eye pointed and closed sits in a deep basin, which is ribbed. Stalk is short, woody, sunk in a wide and deep depression, above which it does not rise. The rind is fine, slightly shining, ground colour light straw-yellow; on the sunny side of a light carmine tint, with darker patches and broad stripes running over it. Small, dark points are visible over the entire sunny side. On the other side it is yellow with white specks. The flesh is white with a yellowish tinge, fine in the grain, juicy, with a pleasantly refreshing flavour. The core is broad, with a few large seeds. The flavour is the most pronounced in March and April, and does not decrease much as the fruit ages. It is valuable as a table fruit, and for orchard culture. It has a remarkably high weight when well developed. The tree is described as a vigorous grower, compact in

habit, with erect young growths, and is an early fruiter. The fruit was figured in the *Gartenflora* in 1895 from specimens taken from the nursery of H. Lorberg, of Berlin and Biesenthal, in which year it was put into commerce. Owing to its lateness in flowering and hardness, the variety is recommended for cultivation in cold districts, and the poor classes of soil. F.M.

The Week's Work.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

The vinery.—Careful attention must be given to vines that have had their bunches finally thinned, and whose berries are now swelling freely. See that both the outside and the inside borders are in a suitable condition of moisture, and this can be best ascertained by means of the border tester, which should be driven into the soil as far as the drainage material, and then be twisted two or three times so as to bring up a sample of soil. Our borders are tested in this manner near their centres at either end. If a state of dryness at the roots is permitted it will be followed by an attack of red spider on the foliage. When watering use tepid water and if a stimulant is required liquid manure: this application of water will suffice until the berries show signs of colouring. Apply a fresh mulching with manure from a spent Mushroom-bed, or moss litter to both the outside and the inside borders. If it becomes necessary to use the front ventilators during very hot weather, see that they are not opened sufficiently to admit a draught of cold air; allow the top ventilators to remain open a little way at night time. Maintain a moist atmosphere in the vinery by damping the paths and the borders twice daily, which is best done in the morning and again in the evening. Do not unduly force the vines just now, for the berries are at their stoning stage. The minimum atmospheric temperature at night time should be 65° Fahr., and 80° by day. Increase the amount of ventilation up to noon each day, at which time the maximum temperature is reached if the house has a south aspect.

Late vines, including Lady Downe's Seedling, Lady Hutt, and Black Alicante, should now have their bunches thinned for the first time. Lower the temperature to 65° at night time and 85° by day, and close the structure early in the afternoon when the thermometer registers 90°. Maintain a moist atmosphere by damping the paths freely both morning and afternoon. Continue the thinning of the bunches, removing first the small and stoneless berries. Open the ventilators in the mornings as soon as the thermometer registers 70°, and gradually increase the amount of ventilation as the day advances. Should red spider make its appearance, sponge the foliage with soft soap and hot water and apply the syringe freely.

Young vines rooted from "eyes" this spring, and that are intended for early fruiting in pots next year, should be shifted into their final pots, using a good rich compost, consisting of chopped turfy loam, some wood ashes, and sifted lime rubbish. To each barrow-load of this compost add a 6-inch potful of coarse-graded vine and plant food. Provide plenty of drainage material in the bottom of the pots, and after the soil has been well consolidated about the roots place stakes or trellises to the plants for securing them, and then apply a good soaking of tepid water. Keep the structure in which they are housed close and warm, and the young roots will soon ramify in the soil.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bickton, East Devon.

Apricots.—Trees that have set large crops of fruits will be benefited by an application of liquid manure water at their roots fortnightly, and this should be continued until the fruits begin to change colour. A good substitute for liquid manure is Peruvian guano sprinkled about their roots and soaked in with clear water. Although Apricots are seldom attacked by red spider and thrips, an occasional washing of the foliage with the garden engine will prove beneficial to the trees after a hot day. Young trees showing robust growths should have their leading shoots pinched to divert the flow of sap to weaker

shoots. All sub-lateral growths should be pinched at the first leaf, and each fruit should be allowed sufficient space to develop.

Figs.—These trees are usually afforded a position facing south, and although they do not require the same amount of water at their roots as stone fruits in similar places, an occasional dose of manure water during the next two months will be of benefit. Reduce the number of fruits where they are thickly placed, doing this before they have absorbed much of the plant's energy. Remove superfluous shoots weekly, and give the roots a good mulching of manure. Similar to the Apricot, the foliage of the Fig is seldom infested by insect pests unless the roots are allowed to suffer from drought. Scale insects are sometimes present, but these may be quickly dislodged with an ordinary pot label. Old trees are prone to develop much sucker-growth; any suckers should be cut away as soon as they are noticed.

General work.—Owing to the continued rains it is most difficult to keep down weeds; the only thing that can be done to combat them is to ply the hoe frequently. Shorten the more robust shoots of red and white Currants; this will allow the breadths of bushes to be netted more expeditiously a little later on. The north-west winds of June 2 and 3 respectively were rather severe, and did damage to the Apple crop, especially on standard trees. Perpetual fruiting Strawberries that are required to furnish a supply of fruits after the ordinary Strawberries are over should have all their flower spikes and runners persistently cut off till within six or seven weeks before the fruits are wanted. Recently planted Strawberries from the forcing houses should have all runners removed and the soil around their crowns stirred with the flat hoe. The varieties Royal Sovereign and Vicomtesse Hericart de Thury are both suitable kinds for autumn-fruiting after having first been forced. Plant the remainder of the pot plants immediately the fruits are cleared, as the ground is now moist and in a good condition for the roots to obtain hold.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Cauliflowers that were wintered in pots in a cold house, or in cold frames, and planted out as directed, on warm borders, &c., should now be about turning-in, but they may be greatly benefited if copious supplies of liquid manure, such as drainings from the stables, be afforded them. The damp and dull weather appears to have suited this vegetable, for the plants are in far better condition with us this season than they have been for several years past.

Asparagus.—In established beds that have provided the main supply, the plants should henceforward be cut less severely, and cutting should cease altogether before the end of the present month, or, at the latest, early in July, after which time the stronger shoots should be allowed to grow, the cultivator thinning out all the weakly ones to admit of plenty of light and air circulating about the plants. Cleanse the beds and alleys from all weeds, and apply a further dressing of artificial manure, eventually cutting out all seed-bearing growths before the seeds fall, for were these allowed to ripen and fall to the ground, many of them would germinate in the spring and the bed would become over-crowded with weakly seedlings, causing the crop to be very unsatisfactory. Similar attention must be afforded the younger plants in the matter of cleansing and dressing, taking great care the plants are not allowed to become over-crowded.

Potatoes.—The showery weather being so favourable to the quick growth of weeds, frequent hoeing is more necessary, even than usual, and should be continued until the Potatoes are ready for earthing-up, which should be done as soon as the plants are about 6 inches high. Continue to make periodical plantings during the next three weeks.

Endive.—A sowing should now be made for the main supply. The moss-curbed and broad-leaved Batavian are the two varieties generally found to be satisfactory. Sow the seeds in shallow drills, drawn at distances of about 6 inches apart. When the seedlings are large enough to be handled, prick them off into some rich ground, putting them at distances of 12 and

16 inches apart. Blanching is usually brought about by tying the ends of the leaves together, but should the weather in autumn be wet, the plants so treated are very liable to "damp." If the plants can be so arranged at the time of planting, that when the time comes for blanching a certain proportion can be entirely covered with some old lights, over which garden mats, or similar covering, can be thrown to exclude light, but at the same time admit a proper amount of air, very few plants will be lost in this way. Continue to make small sowings at fortnightly intervals throughout July and August.

Scarlet Runners.—The plants will now be getting hold of their sticks and making good headway. Those raised from seeds that were sown in the open will require to be thinned, and to have their sticks or poles placed in position. A later sowing should now be made for raising plants that will yield a supply later in the season.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. Ford, Pencarrow, Cornwall.

Flowering shrubs.—As they pass out of flower, such hardy shrubs as Forsythia suspensa, Prunus triloba, Staphylea pinnata, Philadelphus coronarius, &c., which flower on the previous year's growths, should receive any pruning that may be necessary. In many gardens the cutting of sprays for furnishing the vases is done with care and judgment, and it suffices to keep the shrubs in a good condition without further pruning. But the same rule which requires fruit trees to be kept "open" in habit, for the sun and air to ripen the growths, and so induce them to produce flowers, applies with equal force to flowering trees and shrubs, and those which consist of a dense mass of soft, weakly shoots cannot be expected to produce an abundance of blossom. Shrubs in such condition as this should have some of the branches entirely removed, and the weaker side-shoots on the remaining branches should be pruned back to a basal bud. After they attain a height of about 10 to 12 feet, specimens of Magnolia conspicua and the M. Lenné hybrids have a naturally free and graceful habit, which does not require any treatment by the pruner's knife; but the beautiful little species M. stellata has a much more congested habit, and, if treated as advised above, handsomer and more floriferous specimens may be obtained. Old and exhausted bushes of Diervilla (Weigela) rosea, when sawn back to within a few inches of the forks of the main branches, and the roots top-dressed with farmyard manure, soon break into growth, and throw out long graceful branches, which in two years bear a profusion of fine flowers.

Flower beds.—If the plants which have a trailing habit, such as the Ivy-leaved Pelargoniums, are kept pegged down, they will more quickly cover their allotted space. Standard Fuchsias and Heliotropes will now only require an occasional shoot stopped to maintain the symmetry of the specimen. These plants and all quick-growing sub-tropical plants (Eucalyptus, Ricinus, &c.) must be kept securely tied to strong sticks. Keep the flowers removed from those plants which are grown only for their foliage. While there is yet room between the plants to do so, ply the small Dutch hoe frequently; this will materially lessen the work of hand-weeding.

Winter Aconites.—A few clumps dotted here and there in the front of a border give a very poor idea of the possibilities of this lovely early flower which is seen at its best when grown in large masses. It will thrive well under any large tree where the shade in spring is not too dense. The present is a good time to plant the tubers shallowly and in clumps at about 6 inches apart.

PUBLIC PARKS AND GARDENS.

By W. W. PETTINGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Surplus bedding plants.—In public parks the methods of dealing with surplus plants of all kinds vary in different towns. Some authorities make it a hard and fast rule to destroy all plants that are not required for the work of their immediate department, and absolutely forbid the disposal of surplus plants in any other way. From a public standpoint there is much to be said in favour of this procedure, and when once enforced it saves the officials from much unnecessary worry, trouble, and unpleasantness.

When this drastic method of dealing with this question is not followed, it is only fair that the plants should not be distributed in such a manner as to bring the parks department unduly into competition with local nurserymen and market growers. When from unforeseen circumstances a large surplus of bedding plants has to be disposed of, it is not a bad policy to sell them to nurserymen at trade prices. No one should then have any cause for complaint. Under ordinary circumstances it is generally found that after such public institutions as sanatoria, council schools, police stations, &c., which all more or less look to the parks department for some help, are supplied, there are very few surplus bedding plants left on hand.

Distribution amongst the poor.—Some public bodies in their endeavour to brighten slum property make a practice of distributing bedding plants among the poorer classes of the community. One or two corporations have even gone a step farther, and lend the people window boxes in which to grow these plants. Unfortunately this commendable action has not met with the success it deserved, for although there are always plenty of applicants for boxes and plants, many of the recipients soon tire of attending to the plants, which therefore die. Many of these borrowers also forget when the time comes to return the boxes, and they ultimately convert them into firewood!

Sale to working-class people.—A parks committee in one of the large towns in the Midlands has devised a rather novel method of dealing with surplus bedding plants—a method which, under favourable circumstances, is well worth copying. Each season more plants are propagated than are actually required for bedding purposes, and the surplus is sold at reasonable prices to working-class people. In the early part of August each year a flower show is held (under the auspices of the corporation) for two days in one of the parks, where every person who has purchased plants as above stated is entitled to exhibit them for competition. Although the public is only charged 1d. and 2d. for admission to the show, the revenue derived from this source alone is sufficient to provide excellent prizes for the successful competitors, and pay all necessary expenses.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Centropogon Lucyanus.—Spring-rooted cuttings of this pretty winter-flowering plant will now be ready for re-potting. See that the pots are well provided with material for drainage, and use a light, rich soil, to which has been added some sand and charcoal. Return the plants to an intermediate house after potting, and allow them to remain in this structure until they are re-established, after which they will thrive well in frames. Care should be taken that ventilation is given without causing draughts. Syringe the plants and close the frame early in the afternoon to take full advantage of the sun-heat. By the latter part of September the plants should be taken into a warm house or stove, where they will quickly advance to the flowering stage and afterwards bloom through the whole of the winter.

Decorative foliage plants.—The lightest places in a small stove should be reserved for plants that are required for table decoration in the residence, and they should receive special attention, in order to have the foliage and receptacles in the cleanest condition. Small Codæums (Crotons) and Dracænas that were rooted early this spring may now require a shift into larger pots, but the plants should be kept in as small pots as are consistent with their well-being, for, as a rule, these small plants are very useful for purposes of house embellishment. Among the more useful of plants for this form of house decoration may be mentioned the finer varieties of Aralias, including A. elegantissima, A. Veitchii and A. V. gracillima; small plants of Pandanus Veitchii; Reidia glaucescens (especially pleasing when in flower); Rivina humilis, with its long racemes of scarlet berries; small plants of Cocos Weddelliana; Geonoma gracilis, Phoenix rupicola and P. Røbelenii, Thrinax elegans, and Ferns in variety.

Solanum capsicastrum.—Last season's plants that were cut back this spring and plants of

this season's propagation should now be placed outside, and they may be either plunged in their pots or be turned out and planted in a border, for either system is to be recommended. Syringe the foliage each evening to ward off red-spider, for if this insect is allowed to appear, the leaves will turn yellow and eventually fall off. This Solanum, if planted out, should be lifted and re-potted in September, and after the necessary shading for a few days after potting, they should be exposed to full sunshine. The berries will quickly become coloured in a moderately warm house, and after they are red a slightly cooler temperature should be afforded the plants.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Surrey.

Epiphronitis Veitchii, a garden hybrid between Epidendrum radicans and Sophronitis grandiflora, has become so popular and plentiful that it is represented in almost every garden where Orchids are cultivated. It is very useful for decorative and exhibition purposes, the flowers having much value for use in a cut state. In some collections where many plants of this hybrid are grown, the lovely, cinnabar-red coloured flowers may be seen almost the whole year round. Being of dwarf habit the plants do not occupy a great deal of space, and they yield an abundance of bloom. At this season, after the flower spikes have been cut, young shoots appear on the old growths, and these small pieces, as soon as they begin to push forth roots, may be removed with a portion of the stem attached to them, and potted singly in pots of the smallest size that can be conveniently used. If a large specimen plant is desired, a sufficient number of these growths may be planted out in a teak-wood basket or shallow pan, using a compost consisting of sphagnum-moss and small crocks. This pretty hybrid thrives best when suspended in a light, and well-ventilated position in the Cattleya-house, and if the plants and sides of the basket are kept well damped with the fine sprayer, the usual root-waterings will not be necessary. Should the "spot" disease attack the leaves at any time, keep the plants a trifle drier and place them in another position where more ventilation is afforded.

Thunias.—As these plants pass out of bloom they should be placed in a sunny position in the cool greenhouse. Any plants that have failed to flower, and are growing to an undesirable length, should have the young points of the growths carefully pulled out, otherwise they will continue to grow for a long time. The plants will require an occasional watering at the roots so long as the leaves keep green. When the weather becomes warmer they may be stood out of doors by day in full sunshine, and each night replaced inside the greenhouse.

Miltonia vexillaria.—Plants that have passed the flowering stage will not need so much water during the next month or two, and if it is given them too liberally the old roots will certainly decay. Through the summer months plants of this Miltonia should be kept in as cool and well-ventilated conditions as are generally afforded Odontoglossum crispum.

Odontoglossum citrosimum.—Plants that require fresh material about their roots should be given attention at once. They will succeed either in teak-wood baskets or in shallow pans, and should be suspended close to a roof ventilator in the Cattleya or Mexican house. These plants appreciate much fresh air at night as well as by day. Keep them well supplied with moisture throughout the growing period.

Anguloas.—The present is a good time to re-pot plants of Anguloa Clowessii, A. eburnea, A. Ruckeri, and A. uniflora. Being free-rooting subjects, they require a good depth of compost, therefore only about one-fourth drainage is necessary. The rooting material should consist of two parts of peat to one of turfy loam, the remainder consisting of chopped sphagnum-moss and small crocks. Grow the plants in the Cattleya or intermediate house, and after re-potting, and throughout the growing season, water should be afforded as advised in a former Calendar for the deciduous Calanthes. Carefully guard against water from any source lodging in the young growths, as this is very liable to decay from this cause.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JUNE 15—German Gard. Soc. meet.

WEDNESDAY, JUNE 19—York Gala (8 days).

THURSDAY, JUNE 20—Linnean Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—59° 6'.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 12 (6 P.M.): Max. 65°; Min. 56°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 13 (10 A.M.): Bar. 29.8; Temp. 64°; Weather—Bright.

PROVINCES.—Wednesday, June 12 (6 P.M.): Max. 69°; England N.E.; Min. 49°; Scotland N.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Bedding Plants, dwarf Trees, Palms, Bays, Ferns, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 1.

FRIDAY—

Importation of *Cattleya Mendelii*, choice *Odontoglossums*, *Cypripediums*, *Cattleyas*, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

Even at the present day, the manner in which soils support the life of plants and animals is mysterious in the sense that we are yet in the dark as to the nature of many of the substances contained in the soil, of the changes which they undergo, and of the part which they take in plant nutrition.

The soil is not a dead, inert mass, but is full of living organisms, which are constantly at work; it is, in fact, teeming with life. It has been well described as a laboratory or workshop, in which a number of the most wonderful chemical actions are taking place, whereby plant-food is always being prepared, little by little, for reception and assimilation by growing crops.

In this way the agencies of nature assist the cultivator of the soil in converting insoluble organic matter and mineral, rocky substances, into an assimilable form for plant-food.

It is scarcely two decades since it became known to philosophical chemists and botanists that the micro-organisms or bacteria of the soil played such an important part in aiding the growth of plants, and at the present day this new soil doctrine has already been the means of creating a distinct branch of research, termed agricultural and horticultural bacteriology. Scarcely ever before has a new discovery excited more engrossing enquiry

than this branch of science, as is abundantly proved by the extensive and constantly increasing literature and researches on the subject.

This can scarcely be a matter of surprise, when we consider the immense probabilities which may be concealed, and possibly may be realised by the correct conception of the factors that govern the vitality of the minute vegetable and animal organisms upon which, it has been conceived, so largely depends the perfect development of the higher plants, and more especially those cultivated for human food.

Hitherto, cultivators of the soil have, with few exceptions, given no thought to the invisible bacterial life that plays such an important part below the surface of the ground, through whose agency crops and individual plants are enabled to respond to the manurial ingredients added to a well-tilled soil. Yet this rational conception of the fundamental cause of soil productiveness will in future have to be taken into account by farmers, gardeners, and fruit-growers who wish to progress with the times, and who aim at deriving the greatest possible results from the capital and labour invested in their establishments.

It is not meant that every cultivator of the soil should become a bacteriologist, but he should make himself sufficiently acquainted with the nature of soil germs, and understand the conditions favourable to their life and well-being, to be able to appreciate and utilise the results achieved by the study of those who have special opportunities for searching out the intricacies of their behaviour in the soil he cultivates.

To enable us to appreciate the work which the mysterious bacteria perform in the soil, it will be necessary to consider shortly the place they occupy in the economy of nature. The three-fold functions of plant-life are—nutrition, assimilation, and reproduction. These functions are concerned with the food of plants, the digestive and storage power of plants, and the various means they adopt for multiplying and increasing their species.

Respecting the nutrition of plants, it is obvious that, like animals, they must feed and breathe, to maintain life. Plant food is of three kinds, viz., water, chemical substances, and gas. Water is an actual necessity to all plants, not only as a direct food and food solvent, but as the carrier of many essential inorganic materials into the tissues of the plant.

The chief chemical substances of which vegetable protoplasm is constituted are potash, magnesium, soda, lime and phosphates. The gases necessary to plant-growth are four—carbon dioxide (carbonic acid), hydrogen, oxygen and nitrogen. The last-named, viz., nitrogen, which constitutes more than two-thirds of the air we breathe, is, perhaps, the most important food required by plants. Yet, although this is so, the plant cannot absorb or obtain its nitrogen in the same manner in which it acquires its carbon, namely, by absorption through its leaves, nor can the plant take nitrogen into its own structure by any means as free nitrogen. Hence, although this gas is present in the atmosphere surrounding the plant, the plant will perish if nitrogen does not exist in some available form in the soil. It is in this respect that the great value

of the micro-organisms of the soil is apparent. The work is accomplished by two species of bacteria, the first, which converts ammonia gas to nitrites, and the second which converts the nitrites into nitrates, in which form it is taken up and used by plants as food.

OUR SUPPLEMENTARY ILLUSTRATION represents a view in the Rhododendron dell at Kew in early summer. Of all the many distinct and ornamental features of these famed gardens, this dell is one of the most attractive, especially at this season of the year, for, although it is possible to find some plant of Rhododendron in flower out of doors at almost any time between Christmas and the middle of July, late May and early June is the time when the most brilliant effects are produced by these plants. Plants of hardy Rhododendrons are to be found at Kew in several other parts of the gardens, but the general collection of the larger-growing, evergreen species and varieties is to be found in the spot depicted in our illustration. The dwarf evergreen species and varieties, and a few of the rarer deciduous kinds are planted near to King William's Temple, whilst the deciduous or Azalea section is grouped together in a number of large beds on the north side of the Syon House Vista. On either side of the path known as the Broad Walk, and which leads from the main entrance on Kew Green to the Palm House, are planted, in large beds at intervals, a number of the best garden varieties of Rhododendrons. By this means it is possible to see at a glance what effect a particular sort produces when planted in a large mass. In these beds are accommodated such handsome varieties as Lord Palmerston, Madam Carvalho, Michael Waterer, Lady Grey Edgerton, James Nasmyth, John Waterer, Mrs. A. Waterer, Mrs. W. Agnew, Doncaster, and Minnie. In addition to these beds there are others containing groups of species and special varieties, including *R. yunnanense*, *R. rubiginosum*, *R. racemosum*, *R. indicum amœnum*, *R. ledifolium*, &c. Near to King William's Temple are found *R. punctatum*, a free-flowering, evergreen species, a native of the United States; the exceedingly beautiful *R. yunnanense*, which bears numerous white flowers that are heavily blotched with reddish-brown; the lovely little *R. racemosum* from Western China; the tiny-leaved *R. parvifolium*, and *R. serpyllifolium*, with still smaller foliage. An interesting deciduous species is *R. rhodora*, from N. America. The collection also includes the two Japanese rosy-purple-flowered species, *R. rhombicum* and *R. dilatatum*; the curiously flat-flowered *R. lepidotum*; *R. Smithii aureum* and *R. Broughtonii aureum*, both hybrids between evergreen and deciduous species; *R. Przewalskii*, *R. myrtifolium*, *R. hirsutum*, *R. glaucum*, *R. arbutifolium*, *R. dauricum*, *R. campylocarpum*, *R. Metternichii*, *R. Smirnowii*, *R. rubiginosum*, *R. indicum* varieties, and many another. As stated above, the Rhododendron dell contains a very fine collection of the hardier, strong-growing species, together with a selection of the more ornamental garden varieties, both old and new. Some are small plants, but the majority are of large dimensions, some specimens being from 12 to 15 feet in height and as much across. Among the larger specimens are examples of *R. macranthum*, *R. purpureum splendens*, *R. fastuosum fl. pl.*, the varieties Lord Wolsley, Lord Palmerston, Blanch Superb, Madam Carvalho, Lady Eleanor Cathcart, Kewense, Fortunei, Broughtonii, Manglesii, catawbiense, and Luscombei. There are also a number of hybrids of the fragrant-flowered *R.*

Supplement to the "Gardeners' Chronicle."



THE RHODODENDRON DELL AT KEW.

Photo by E. J. Wallis.

Temple Press Ltd., Printers, 7-15, Rosebery Avenue, London, E.C.

Fortunei. The Azaleas or deciduous Rhododendrons are represented by many hundreds of plants, beautifully situated between stumps of old trees in an open glade. In this quarter of the garden is to be seen just now some of the most exquisite shades of colouring imaginable, including yellow (pale and bright), orange, reds of many shades, delicate pink, white, rose, and all intermediate shades. These Azaleas represent both species and hybrids, the former including *R. calendulaceum*, *R. nudiflorum*, *R. sinense*, *R. occidentale*, and *R. flavum*. For

Anchusa and some of the other members of the Boraginaceæ is only equalled in depth and beauty by that of the Gentians, and in "Opal" is seen the beautiful shade of blue suggested by the name.

LINNEAN SOCIETY.—The next meeting will be held on Thursday, June 20, at 8 p.m., when the following papers will be read: 1, by the late Dr. MAXWELL T. MASTERS, F.R.S., "Distribution of Conifers of China"; 2, Mr. CLEMENT REID, F.R.S., and Mrs. REID, "Pre-glacial Flora of

Canadian Horticulturist for the month of May, the prospects are favourable for all kinds of fruits. The trees have come through the winter uninjured except in Kent county, where the Peach buds are badly cut and many young trees killed; as also four-years-old Pear trees. Fruit buds on Apple trees are plentiful everywhere, and the trees are healthy.

ROYAL METEOROLOGICAL SOCIETY.—A meeting will be held in the rooms of the Society, 70, Victoria Street, Westminster, S.W., on Wednes-



FIG. 162.—SPRAY OF *CHOISYA TERNATA*: FLOWERS WHITE AND FRAGRANT (see page 382).

delicacy of colouring and for richness of perfume deciduous Rhododendrons are unrivalled amongst plants, and no garden should be considered complete without a selection of them.

FLOWERS IN SEASON.—From Messrs. B. LADHAMS, Ltd., Shirley Nurseries, Southampton, we have received flowering sprays of *Anchusa italica* "Opal." The blue of the flowers of

Great Britain"; 3, Dr. J. STANLEY GARDINER "Cruise of H.M.S. 'Sealark' " Part II.; 4, Mr. A. W. WATERS, "On Tubucellaria"; 5, Dr. N. WOLFENDEN, "Cruise of the 'Silver Belle' "; 6, Mr. E. A. N. ARBER, "Triassic Species of Zamiites and Pterophyllum."

FRUIT PROSPECTS IN CANADA.—According to advices received from correspondents of the

day, June 19, at 4.30 p.m., when the following papers will be read: "Weather and Crops, 1891-1906," by FRANCIS CAMPBELL BAYARD, LL.M.; "The Relation of the Rainfall to the Depth of Water in a Well at Cirencester, 1908-1906," by CHARLES P. HOOKER, L.R.C.P. Mr. WALTER CHILD will exhibit the "Step" Anemometer, an instrument which he has designed to obviate the "sheltering" error.

NATIONAL ROSE SOCIETY'S EXHIBITIONS IN 1907.—The Metropolitan Exhibition will be held in the Royal Botanic Gardens, London, on Thursday, July 4; the Provincial Exhibition at Saltaire, in Yorkshire, on Tuesday, July 16; and the Autumn Rose Show, in the Royal Horticultural Hall, Vincent Square, Westminster, on Tuesday, September 24.

POTATO "MIDLOTHIAN EARLY."—The *Scotsman* last week stated that: "Market gardeners along the coast report very rapid growth in Potatoes during the past week, especially in plants of Midlothian Early, which in many gardens are just meeting in the drill." This variety secured both first and second prizes at the recent show of the Royal Caledonian Horticultural Society in Edinburgh.

THE FRENCH TOURING CLUB.—This body has divided the sum of 5,000 francs among several forestry societies for the purpose of improving the woods and meadows. The club seeks to influence the schoolmasters and the children in this scheme of beautifying the landscape by offering prizes. Arbour Days, which in previous years have had good results in the same direction, will likewise be instituted, seeing that these serve the aims of the club in an excellent manner.

THE TERMINAL BUDS OF RUBUS.—An example of the manner in which plants may suffer injury from hard frosts is given by a correspondent in the *Gartenflora* for May 1, 1907, p. 238. He observes that when nature's warning is disregarded the plant may suffer, stating as an example some one-year-old shoots of the large-fruited Blackberry, some of which had been taken down from a fence and laid on the surface of the soil, but others had been left on the fence. The points or end buds of the long growths of the Blackberry consist in late autumn of a globular thickening—a winter bud capable of developing roots. This point is intended to form a new plant by sinking into the soil and taking root. The union with the earth affords protection to these terminal buds, for all shoots that were in a position to do this escaped injury from frost; whilst those of the same age that were fastened to the fence were more or less damaged.

THE VEGETABLE PRODUCTIONS OF BULGARIA.—The visitor to the exhibition now open at Earl's Court who has observed the large collections of pulses, grains, and other seeds of plants, as well as the fine specimens of timber in the rough state, and also worked up into articles of domestic use; the wines, tobacco, and hemp, and the attar of Roses made at Kasanlik, may have been astonished at their intrinsic good quality and great abundance. Whilst the so-called Balkan States were under Turkish rule, every kind of art and culture remained in a backward condition, but under the more enlightened rule of the present Sovereigns there are many signs of improvement and progress on every hand, and internal trade and exports have largely increased. It is interesting to learn from *Thalacker's Offerte Journal*, of recent date, the amount and value of the imports and exports in plants, shrubs, flowers, flowering bulbs, and garden and forest tree seeds. The imports in these articles in 1905 amounted to 41,562 kg. (52,516 frs.), of which Germany contributed 15,946 kg. (18,766 frs.) The imports of fresh fruits amounted to 1,357,985 kg. in value, 237,161 frs., of which quantity only 19 kg. of the value of 7 frs. came from Germany. Bulgaria's exports came to about 1,817,814 kg. (61,528 frs.), of which total 24 kg. (7 frs.) only came to Germany. The above statistics show that Bulgaria is a country in which horticulturists may find a market and do good business if ordinary prudence is exercised.

THE ONION SEED CROP IN CALIFORNIA, &c.—The latest estimate of damage to the prospective Onion seed crop in California places the number of acres totally destroyed at something over 1,000, and a crop of from 30 to 50 per cent. on the remaining area. One grower states that, in his opinion, Onion seed will be worth from 2 dollars to 3 dollars per pound next autumn. In Germany Onion seed was among the short items this season, except Giant Zittau, which was in abundance, owing to the unusually large plantations made in 1906; and the price of this variety went down lower than ever.

ELECTRICITY AND THE VINE.—Mr. GEORGE MASSEE, writing in *Knowledge and Scientific News* respecting the use of electricity in promoting the growth of the Vine and in destroying its parasitic enemies, states that the "discovery was first made by a cultivator of Vines. The method consisted in the arrangement of two series of metallic conductors traversing the roots at a depth of about 60 centimetres, so as not to injure the above-ground portion of the Vines. Each series of conductors forms with the plants it traverses an electrode, and electric currents are liberated by neighbouring electrodes of contrary signs. One of the collectors is bound to a lightning rod, about 90 metres in height, furnished at its extremity with a quantity of small copper points. The other is attached to a metal plate buried in the ground. The experiment was tried on Vines badly infested with Phylloxera, and at the end of the first season it was found that most of the insects were killed, and at the end of the second season not a single living insect could be discovered. In addition to destroying the Phylloxera, it was observed that the treated Vines grew more vigorously than a check batch of untreated ones, the quantity and quality of the fruit was also much better in the treated batch. This primitive method of applying electricity has been modified by Professor BARDE, who finds that in place of a current of about 120 volts as first used, currents varying between 1,000 and 2,000, or even 8,000 volts can be applied without producing the slightest injury to the plants treated."

LEGACIES FOR SERVANTS.—The Hon. MARK ROLLE, who died in April last, left his butler and housekeeper £60 each, his gardener, forester and keeper, £50 each, all of Stevenstone, North Devon; while at Bicton, his East Devon Estate, the gardener, forester, clerk of works, and keeper, all benefit by £50 each.

THE CHEROKEE ROSE (R. LÆVIGATA).—A correspondent in *Horticulture*, U.S.A., writing in regard to the statement that is made in *Cyclopedia of American Horticulture* that the Cherokee Rose "can be grown satisfactorily away from its native regions only in a greenhouse," states that if the author of that sentence is still alive, and will cross the Continent, he may see a hedge of this Rose 50 feet high, as many feet in width, and eight times as long, growing in the private grounds of Mr. TEVIS, at Bakersfield. When in bloom it is one of the most beautiful sights in California.

PICEA MORINDCIDES, REHDER.—We have received a cone-bearing shoot of this interesting Spruce from Sir EDMUND G. LODER, Bart. The tree from which it was taken is growing in his garden at Leonardslee, Horsham. This is the first recorded instance of this Spruce bearing cones in Great Britain. We only know of one other tree of goodly size, and that is in Lord ANNESLEY's garden at Castlewellan. *Picea morindoides* (see *Gardeners' Chronicle*, April 7, 1906, Fig. 84) is of Himalayan origin, and is one of the "Flat-leaved Spruces." In habit it resembles *P. morinda*, but in leaf-character is scarcely distinguishable from *P. sitchensis*. Its status as a species was first recognised by Mr. REHDER, who found the tree in the garden of M. ALLARD, near Angers.

This tree produces cones every year, but M. ALLARD says it has never borne fertile seed. We hope Sir EDMUND LODER may have better fortune. It is not unlikely, as was pointed out by Dr. HENRY in these columns, March 3, 1906, that other specimens are in existence in Britain. An illustration of the Castlewellan tree was given in our issue for May 5, 1906, p. 294. The cones are 1½ to 2 inches long, cylindrical, and in colour reddish purple.

AGRICULTURAL EDUCATION.—The Departmental Committee, of which Lord REAY is chairman, held meetings on the 4th, 5th, and 6th inst. Professor LLOYD MORGAN, University College, Bristol; Dr. H. R. MILL, Royal Meteorological Society; Mr. S. KIDNER, Milverton, Somerset; Mr. E. V. V. WHEELER, Worcester County Council; Mr. EDWARD BROWN, lecturer in poultry keeping, &c.; and representatives of the Harper Adams Agricultural College, Newport, Salop, of the University College of North Wales, Bangor, and of Bigod's Hall, Dunmow, Essex, attended and gave evidence.

WANSTEAD PARK.—Last winter the West Ham Distress Committee, with the consent of the Epping Forest Committee, undertook the task of excavating and concreting the bed of the Heronry Pond in Wanstead Park, and enlarging the islands; the Distress Committee were thus able to find work for a large number of unemployed men for many weeks during the winter. The amount originally voted has been found insufficient to complete the undertaking, and the Epping Forest Committee has therefore agreed to provide £500 out of the capital account of the Epping Forest Fund, subject to certain conditions, to finish the work.

IRISH INTERNATIONAL EXHIBITION.—We are informed that an exhibition of Sweet Peas will probably be held within the precincts of the Irish International Exhibition, Dublin, towards the end of July. Due notice will be given of the arrangements as soon as completed.

THE LAW OF TRESPASS.—At a general meeting of the Leek and District Agricultural Society, held on May 15, it was decided to send to the President of the Board of Agriculture and the President of the Royal Agricultural Society, the following resolution:—"That owing to the unsatisfactory state of the law relating to trespass, and the great amount of damage frequently caused thereby to farmers, Parliament be petitioned to amend the law with respect to the penalties, &c., or possibly, a clause might be inserted in the English Land Bill which the present Government have introduced."

GLADIOLUS "PEACE."—Referring to the description of this variety on p. 205, Mr. H. H. Goff, Simcoe, Ontario, Canada, writes us as follows:—"The variety is not pure white, but has a delicate lilac feathering on the inferior petals. It is, however, a grand flower of rare quality, and the plants are extremely vigorous. It was named before Messrs. Kelway's flower of the same name came under my notice."

Publications Received.—*Flower Decoration in the House.* By Miss Gertrude Jekyll. Country Life Library, George Newnes, Ltd., Covent Garden, W.C. —*The Art and Craft of Garden Making.* By Thomas Mawson; 3rd Edition. B. T. Batsford, 94, High Holborn, London.—*From Collins' Clear Type Press*, London, and Glasgow, *The Great Refusal, The Secret Woman, The Brown Eyes of Mary, and The Golden Butterfly.* These are the first four books in the issue of Collins' "Handy" Modern Fiction, published at 7d. each net. These little books are neither so ephemeral as the 6d. novels in paper covers, nor expensive like the 6s. volumes. Each book is clearly printed in bold type, with coloured frontispiece and title page specially drawn for the series.

A DISEASE OF AGAVES.—These plants have, under cultivation, hitherto escaped the attack of fungoid disease, but now Dr. COOKE writes that a species of anthracnose, which developed on young Agaves in Italy, has made its appearance in the United States, and may ultimately reach these islands. All the species of gloeosporium and colletotrichum are most persistent pests of plants under cultivation. He says: "In the present instance a number of small Agave plants were placed in one of the greenhouses of the Missouri Botanical Gardens, and in a short time many of them were found to be dying from a disease which at first attacked the older leaves. The conidia of the fungus apparently germinate on the surface of the host plant, and gain entrance through the stomata or through wounds. The tissue of the leaf is penetrated by the mycelium in all directions, and forms either a circular or an elliptical spot, which is at first darker in colour than the surrounding tissue, but changes finally to either a brown or a grey colour. The adjacent tissues under moist conditions turn brown and rot rapidly, the mycelium penetrating to all parts of the leaf. Under less humid conditions the affected tissues of the host slowly darken in colour, often assuming a purple tinge. The pustules are usually formed in concentric rings, and differ from those in species of gloeosporium in being furnished with setæ, which is a characteristic of colletotrichum. The following is a more explicit description of the fungus causing the disease. 'Spots circular or elliptical, often becoming confluent, olive, changing to grey or brown; pustules spherical to oblong, usually breaking through the epidermis in concentric rings, and ejecting orange-coloured masses of conidia; setæ acute to blunt, light brown, 2 to 5 septate, 150 to 170 × 5 to 6 mm. Conidia oblong or cylindrical, hyaline, with one or two guttules 16 to 31 × 5 to 6 mm. Conidiophores erect, hyaline, usually simple, but variable in length. No ascigerous stage has been found.' This pest has been recognised upon leaves of six or seven species of Agave under cultivation, and often causes the death of young plants. The species thus characterised is named *Colletotrichum Agaves* (Cav.), and was first detected on leaves of *Agave Utahensis*, and has presumably developed on the leaves of a species from Mexico. The superintendent of the garden has been successful in checking the spread of the disease, which is favoured by moist conditions. All the diseased plants are placed in a separate locality, and the lower leaves are removed as soon as they show signs of the disease. Bordeaux Mixture, made according to the ordinary formulæ, is beneficial in preventing the spread of the fungus to adjacent plants."

REMEDY FOR SLUGS.—A correspondent in a morning paper writes: "A capital means of combating slugs is malt-dust, which can be obtained from any brewery. It should be sprinkled around the seedling plant in an unbroken circle. As soon as the slug gets into this dust its attention is centred on ridding itself of the clinging material."

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

A YELLOW RHODODENDRON.—I read with much interest the article on hardy Rhododendron hybrids in the issue for June 1, but I cannot agree with the writer when he says that "up to the present no hardy, yellow-flowered Rhododendron has been raised." We have had in the garden here for many years a pure yellow variety precisely similar to *R. Thompsoni* except in colour. It is about 8 feet in height and the same through, and it is quite hardy. We have also *R. Smithii aureum*, sent to Lord Annesley from Kew, which is a good yellow colour and has been some years out-of-doors; this also appears to be perfectly hardy here. J. Ryan, The Gardens, Castlewellan, co. Down, Ireland.

THE CULTIVATION OF WATSONIA ARDERNEI.

—The account (on p. 273) of failure to grow *Watsonias*, by F. W. G., may just as well have been written of many thousands of bulbs or corms that find their way to English gardens, and in practically every instance the trouble arises during the resting period and immediately before it. It is here, certainly, that cultivation is faulty, and more generous treatment is necessary for the plants whilst in growth and at rest also. In the first instance F. W. G.'s pots were too small. A *Watsonia* could not perfect a flower spike and form a new bulb of flowering strength in such confinement, and particularly would failure be likely to ensue if every endeavour was not made to maintain the leaves in a green state as long as possible. Their root system is exceedingly strong and the roots are often as much as one yard in length. A good way of treating *Watsonias* is to grow three bulbs in a 12-inch pot, using a compost of fibrous loam mixed with one-fourth its bulk of dried cow-manure, and taking care to provide the pots with good drainage. The bulbs may touch the sides of the pots with advantage to their roots. Forcing will destroy their vigour; they should be allowed to grow slowly in the temperature of a cool vinery, giving cow-manure water when the pots have become filled with roots. Here they may remain till the spikes develop, when exposure to more sunshine will prepare them for the conservatory or display-house. Cultivation does not end here, however, for as long as a green leaf remains to do the work of building up new corms, water will be required, and if plenty of leafage in an active state survives the inflorescence, manure water may be freely given. All the ripening the bulbs will need is readily provided by half plunging the pots in the open sunshine; here they will rest quietly till winter, such rainfall as they may get sufficing to maintain their freshness and vigour. They will start into growth at their accustomed time, but often remain quiescent for many weeks with the growths just appearing through the soil, and one can extend the flowering season by selecting such as are precocious, introducing these to more heat, allowing the others to follow. A *Watsonia* that flowers exceptionally well generally makes two or three corms, and these need every chance of development after the flowers have passed. If such development is continued at the expense of a dry resting period it does not matter. One can flower a fully developed corm without previously resting it for a long time, but one cannot flower an undeveloped corm under any conditions. The more one studies Cape bulbs, or those from other warm climates, the more is one inclined to regard the prolonged resting period as of secondary importance. The plants cannot do the work in a handful of soil they have been accustomed to do in a bushel; pot culture is still an artificial way of growing plants, and successful only so long as it is aided by good culture. One can follow guardedly in the footsteps of the man who grows *Chrysanthemums* and vegetables well; build up flowering bulbs by extending the growing season to the uttermost limits; rest can follow this if the bulbs have gained strength enough to flower. Any reference to *Watsonias* would be incomplete without a warning. These plants are wholly incapable of withstanding fumigation without injury, a character shared by many Iridaceous plants from the Cape. G. B. Mallet.

CRUSHED SHELLS AS A FERTILISER.—The value of shells in a crushed state is not generally recognised when the compost for various plants is being prepared, or top-dressings for Vines and other fruit-tree borders. It is the custom to mulch such freely each year with farmyard manure, and it may be sometimes carried to excess causing the borders to become soddened and soured. A beneficial change may be made occasionally by the use of crushed shells, even if a slight mulch of some kind has to be given later for conserving moisture in the soil. It is with pot plants, however, that I have noticed the most satisfactory results from the free addition of crushed shells in the compost, and also as part drainage. The roots of fruiting Pines revel in it, proving it to be a good "root producer" as well as fertiliser. In turning out the old stools of these as well as those of *Chrysanthemums* that had been grown for producing exhibition blooms, I have found a solid mass of roots where an inch of crushed shells has been placed over the corks. I would not advise the use of oyster shells in a whole state for drainage, as they decompose only very slowly and the soil is apt to collect in the inside of the shells and prevent

the water getting away freely even when the concave side is placed downwards. Such shells should be well broken and then passed through a sieve with a half-inch mesh, using the rougher for placing over the corks and the finer for mixing with the soil. We prefer this to sand, as porosity is the better secured and the staple improved. The shells need not be those of oysters, as I have used, with equally good results, shell gravel which forms suitable paths in ferneries. Richard Parker.

HARDINESS OF THE CAMELLIA.—Referring to *Practical Gardener's* note, p. 846, I do not think the *Camellia* can be considered hardy in this county, for on three occasions stout, carefully-hardened bushes have been planted at Grimston, but in the course of two or three years they have all died. They were afforded sheltered positions and had their stems and main branches wrapped with the common bracken for protection in the autumn. In one case the trees survived through two mild winters practically unhurt, but the third season, when upwards of 15° of frost were registered they succumbed. The plants included half a dozen varieties, *Marchioness of Exeter* being the hardiest. It may be stated that Grimston is situated in mid-Yorkshire, at the end of lower Wharfedale, and at an altitude of about 60 feet above the sea-level. The sub-soil consists of magnesian limestone. H. J. C., Grimston Gardens.

STRAWBERRY "KENTISH FAVOURITE."—I wish to direct the attention of gardeners and market growers who have not yet grown this variety to its valuable qualities as an early forcing kind. I forced a few plants this year in the same house, and concurrently with a batch of *Royal Sovereign*. The fruits set well, swelled evenly and rapidly, and ripened eight days before those of *Royal Sovereign*. Each plant perfected from eight or ten fruits, which averaged from 2½ to 3 ounces each. They were solid and firm in texture, somewhat sweeter and deeper in colour than *Royal Sovereign*, and possessed a distinct "pine" flavour. The firm texture of the fruit should ensure their travelling well in transit. The habit of the plant is dwarf, sturdy, and compact. I should not like to prophesy that it will supersede *Royal Sovereign* as an early forcing variety, but I predict that it will speedily attain a prominent position, as a variety for early forcing. T. Chalkis, Wilton House.

YORKSHIRE GALA.—This annual horticultural exhibition will be held on June 19, 20, and 21. The Yorkshire Gala is the only northern prototype of the Temple Show in the south. Next year (1908) is its jubilee, and already the enterprising committee has issued a preliminary schedule of extra prizes to be awarded on that occasion. These prizes are certainly of an original character, and may reasonably be expected to produce good competitions. I should like to suggest that medals of varying value be given for the best plans of how to lay out gardens varying in size from half an acre upwards, and for the best exhibit of implements useful in horticulture generally. The cost of doing this would not be great, and it would have some educational value. *Yorkshire Gardener*.

MICE ATTACKING LILIES.—The best course for *B. L.* to take in regard to field mice destroying his Lilies is to dust the flower heads and young leaves with red lead. He will find that the mice will not eat many buds, as they dislike the taste, and it will poison them if they venture to do so. I have known mice to eat Lilies before, and have found poisoning the only remedy. E. H. Hallett.

SCHIZANTHUS AT COTE HOUSE.—Of late years the greenhouse *Schizanthus* has become exceedingly popular as a pot plant, and great improvement has taken place in the quality and colour of its flowers; especially is this seen in the type known as *S. Wisetonensis*. Amongst the improvers of this flower must be included Mr. W. H. Bannister, of Cote House Gardens, Westbury-on-Trym, Bristol. Mr. Bannister's strain is a very fine one, the plants being of medium size and neither very dwarf nor of the great height to which plants of the older stocks will rise, but averaging about 4 feet. Many of the lateral sprays of his flowers are fully 18 inches in length, the habit of the plants being much branched, and the colours very varied. The flowers are in demand at Cote House for cutting, and successional batches are raised

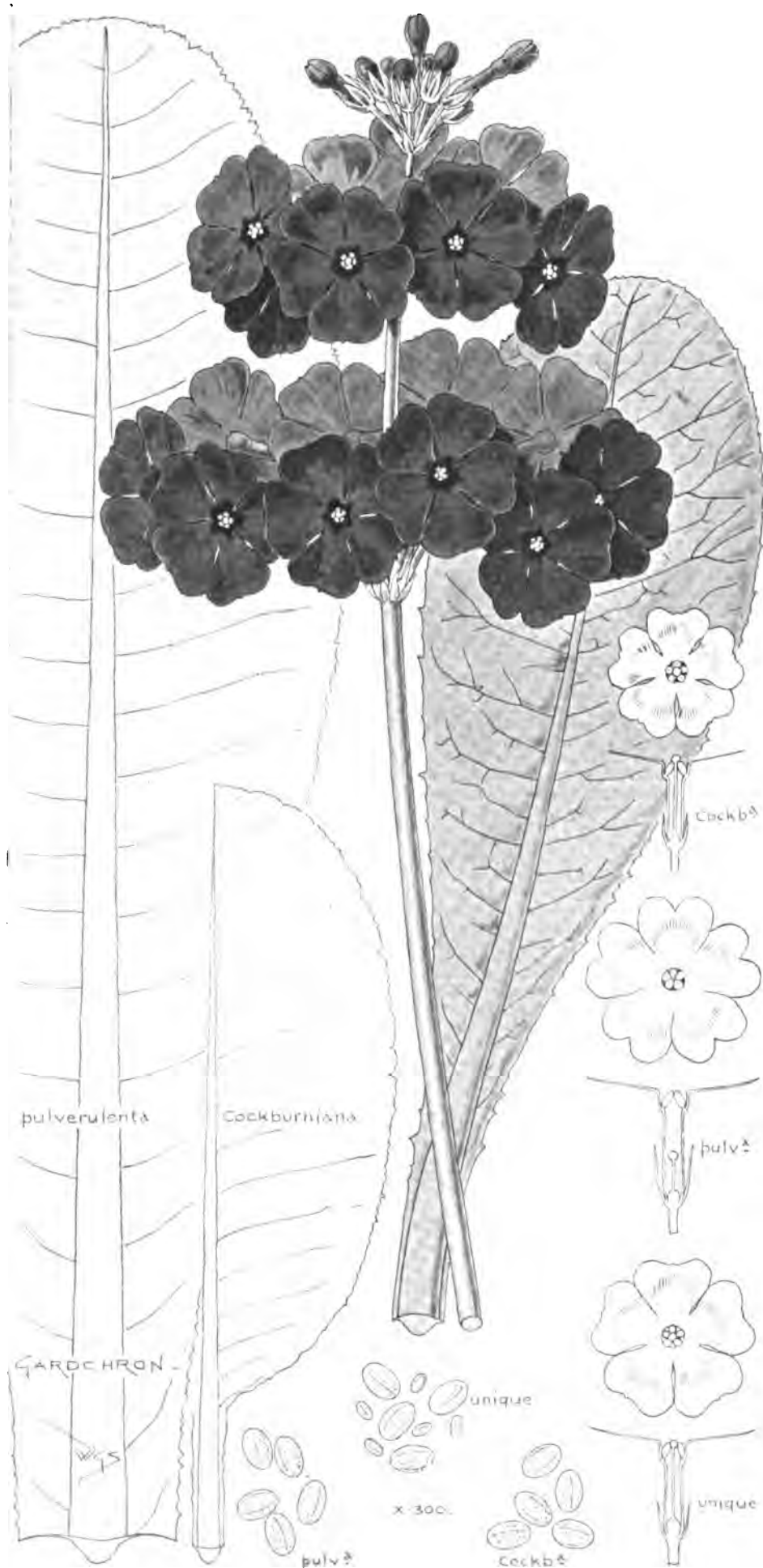


FIG. 163.—PRIMULA X UNIQUE, A HYBRID FROM P. COCKBURNIANA AND P. PULVERULENTA WITH DETAILS.

to furnish a supply throughout the year. In a large roomy greenhouse in these gardens these plants make a beautiful display. The colours of their flowers have been specially selected; among them are some very distinct shades, and from a stock of plants yet unflowered more "breaks" are anticipated. Any plant that falls below the required standard is at once removed, so that no opportunity is afforded for retrograde influence in the stock. An observable point in Mr. Bannister's plants is their extreme floriferousness, with an accompaniment of neat foliage, the habit generally being devoid of coarseness that is common to many stocks. This is due to cultivation, for instead of using a rich compound, or even new turfy loam, Mr. Bannister employs soil that has been turned out of Chrysanthemum pots in spring, and to this is added leaf-mould. This is found to provide ample leaf growth without coarseness, and a plentiful supply of blossoms. The plants are grown in pots of various sizes, but the main batches are accommodated in 5-inch and 6-inch receptacles. A few selected plants required for special purposes are given still larger-sized pots. W. S.

SEQUOIA (TAXODIUM) SEMPERVIRENS.—Is there any gardener now surviving who can tell me by whom and in what year this tree was introduced to cultivation? Kent, in Veitch's *Manual of Conifera*, and others who have copied him, assign it to Hartweg, in the year 1846. Now, I have searched Hartweg's journals, and the volumes of the *Journal of the Royal Horticultural Society* for several years, and can find no mention of his having sent seeds to the Horticultural Society, for whom he was working. Neither is the tree mentioned as among the introductions of the society by Gordon. The first mention I can find of this tree in the *Gardeners' Chronicle* is on March 17, 1849, when James Duncan, writing from Basing Park, says that in the latter part of July, 1847, a plant 9 inches high was transferred from a pot and planted out. In the same vol., p. 280, the Editor, in notices to correspondents, says: "In general it may be considered hardy, but it is sometimes injured in severe winters." This looks as though it had been some years in cultivation at that time. But Hartweg's first journal from California only arrived in London on November 4, 1846, in which he speaks of having seen *Taxodium sempervirens* near Santa Cruz, where he did not arrive till June 22, 1846. Even if seed was collected then, which seems extremely doubtful, it could hardly have produced a plant 9 inches high by the following July. H.

FRIMULA X UNIQUE.

WHEN *Primula Cockburniana* was first exhibited by Messrs. James Veitch & Sons, Ltd., at the meeting of the Royal Horticultural Society on May 23, 1905, it was at once recognised as a very valuable addition to the genus, for although the plant itself did not possess the habit and characteristics of a good garden species, the orange-scarlet colour of its flowers was distinct from anything of the kind previously seen in *Primulas*. Therefore it was said, when the plant was illustrated in these columns, that if used as a parent it might produce a new race having orange-scarlet flowers and a good garden habit. The beginning has been made, and in *Primula X Unique* (fig. 163) a hybrid is illustrated in which *P. Cockburniana* has been blended with the strong-growing and free-flowering *P. pulverulenta*. Several plants from this cross were exhibited recently by Messrs. Veitch at the Temple Show, and from these Mr. Worthington G. Smith has prepared the illustration. One plant bore six stout inflorescences, with flowers in verticillate whorls, the calyces and pedicels being covered with a white mealy wax, or farina. The foliage of the hybrid greatly resembles that of the common Primrose, the lamina being decurrent along the petiole, as in *P. pulverulenta*, but in *P. Cockburniana* the lamina is developed very little on the petiole. The colour of the petals is described by our artist as "Turkey red; it appears

to be a mixture of the colours seen in the parents. By further crossings and sports, aided by careful selection, we have no doubt but the clear-orange colour of *P. Cockburniana* will be restored, and it will be allied with the vigour of *P. pulverulenta*. *P. pulverulenta* is a perennial, and *P. Cockburniana* is not; it will therefore be interesting to see if *P. × Unique* has a perennial character. It will be seen from the illustration that the pollen-grains of *P. pulverulenta* and *P. Cockburniana* are alike, but those of the hybrid are of two sizes.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 11.—The Hall in Vincent Square, Westminster, was filled with exhibits on the occasion of the ordinary fortnightly meeting on Tuesday last.

Cuthbertson, Geo. Gordon, W. Bain, Jno. Green, M. J. James, A. Turner, Geo. Paul, C. T. Druery, Jas. Douglas, C. E. Pearson, J. T. Bennett-Poe, Walter T. Ware, W. Howe, Jas. Walker, J. F. McLeod, C. R. Fielder, H. J. Cutbush, H. J. Jones, Ed. Mawley, R. Hooper Pearson, R. C. Reginald Neville, and J. Jennings.

Messrs. H. B. MAY & SONS, Edmonton, displayed 46 varieties and species of *Nephrolepis*. This rich collection was of much merit, many of the plants being exceedingly large, and all were well developed. The most showy were varieties of *Nephrolepis exaltata*, *N. e. Pierstoni*, and its handsome derivatives, *N. e. Todæoides*, *N. e. canaliculata* (some of the leaves had tassell-like growths), *N. e. Whitmani*, &c. We noticed a magnificent plant of *N. elegantissima*, and another of *N. exaltata superba*. There were also seen the rare *N. acuta*, with very dark foliage, and the climbing species, *N. oblitterata*. (Silver-Gilt Flora Medal.)

Mr. L. R. RUSSELL, Richmond Nurseries, Richmond, Surrey, displayed handsome foliage

species introduced by their collector, Mr. E. H. Wilson. *Aconitum Hemsleyanum* is a climbing species; *Vitis flexuosa Wilsoni* is another climbing plant, and an addition to the numerous ornamental vines already in cultivation; *Lonicera Maackii* was figured in our issue for April 27 last. *Enkianthus campanulatus*, *Magnolia parviflora*, *Olearia ilicifolia*, and *Vitis Henryana* are other interesting plants noticed in this exhibit. As a separate group Messrs. VEITCH exhibited 110 plants of *Gloxinias*, and a desirable strain of long-spurred *Aquilegias*. (Silver-Gilt Banksian Medal.)

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, showed a remarkable collection of Carnations, principally vases of American or winter-flowering kinds, but many were pot plants, including some fine specimens of *Souvenir de la Malmaison* varieties, amongst which were *Duchess of Westminster*, *H. J. Jones*, *Baldwin*, *Lady Rose*, and *Princess of Wales*. Large plants of this latter variety were presented, one of which was carrying 56 blooms. Messrs. HUGH LOW & Co. also exhibited plants of



FIG. 164.—*PRIMULA PULVERULENTA* (ONE OF THE PARENTS OF *P. × UNIQUE*) AS IT FLOWERED IN MESSRS. JAMES VEITCH AND SONS' NURSERY AT COOMBE WOOD.

The following awards were made by the ORCHID COMMITTEE to novelties submitted for certificate, namely, one First-class Certificate and one Award of Merit.

The FLORAL COMMITTEE recommended an Award of Merit to a blue-flowered species of *Meconopsis* (*M. racemosa*), and similar awards to six other plants.

No award to a novelty was made by the FRUIT AND VEGETABLE COMMITTEE on this occasion.

In the afternoon 135 new Fellows and four Associates were admitted to the privileges of the Society, and Mr. Walter P. Wright delivered a lecture on "Arches, Pillars, and Pergolas."

Floral Committee.

Present: W. Marshall, Esq., and Messrs. H. B. May, T. W. Turner, G. Reuthe, Chas. Dixon, J. W. Barr, W. P. Thomson, E. H. Jenkins, W.

plants of stove and greenhouse species. Well-grown and highly-coloured *Dracænas*, *Pandanus Veitchii*, *Bertolonias* in variety, *Codiaeums* (*Crotons*), *Maranta hieroglyphica*, *Heliconia illustris rubicaulis*, *Ficus radicans variegata*, *Aralias*, *Alpinias*, *Phyllanthus*, and other equally beautiful subjects made a pleasing display, the inclusion of *Nertera depressa*, in fruit, along the front of the display giving a pleasing finish to the exhibit.

Messrs. WM. BULL & SONS, King's Road, Chelsea also displayed ornamental-leaved plants of exotic species. The back row was formed of *Aralia Veitchii*, and in the main group were *Bertolonias*, *Aglaonema pictum*, *Dioscorea chrysophylla*, *Hoffmannia Ghiesbreghtii*, *Cryptanthus Beuckeri*, *Dorstenia argentea*, *Eugenia myriophylla*, &c.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, S.W., again showed an assortment of new plants principally of Chinese

Metrosideros floribunda. (Silver-Gilt Banksian Medal.)

Mr. C. F. WATERS, Deanland Nursery, Balcombe, Sussex, also showed remarkably well-grown Carnations in the best varieties, including *Nelson Fisher*, *Floriana*, *Pride of Exmouth*, *Lady Bountiful*, *Enchantress*, *Lady Carlisle* (rose), *J. Street* (scarlet), &c. (Silver-Gilt Banksian Medal.)

Messrs. G. BOYES & Co., Aylestone Nurseries, Leicester, displayed vases of Carnations of the winter-flowering type.

Mr. GEORGE MOUNT, Canterbury, contributed a magnificent display of Roses that occupied the whole side of one of the long tables. Arches of rambling varieties formed a pleasing background, and at intervals large banks of such handsome varieties as *Captain Hayward*, *Ulrich Brunner*, *Mrs. J. Laing*, *Mrs. Sharnan Crawford*, and *Frau Karl Druschki*, with smaller *epergnes* and vases filled with specimen blooms

of exquisite kinds, and with here and there a pillar plant of *Hiawatha*, Dorothy Perkins, or Blush Rambler formed one of the prettiest and most meritorious displays in the Hall. (Silver-Gilt Flora Medal.)

Messrs. B. R. CANT & SONS, Colchester, exhibited varieties of garden Roses, especially noteworthy being single Briar varieties such as Austrian Briar (copper and yellow forms), Bardou Job, &c. (Silver Flora Medal.)

Messrs. FRANK CANT & Co., Colchester, also showed garden varieties of Roses, and some excellent plants of the popular Dorothy Perkins variety. (Silver Banksian Medal.)

Messrs. PAUL & SON, Old Nurseries, Cheshunt, displayed Roses of climbing varieties all very freely flowered. Especially beautiful were the white Trier and the large single white *Rosa sinica*. Some grand blooms of the variety Dean Hole were noticed, and in the group were specimens of the long tubular-shaped flowers of *Lonicera Hildebrandtii*. (Silver Flora Medal.)

Mr. GEO. PRINCE, Longworth, Berks, showed bunches of Roses from the open, and some choice specimen blooms of such notable kinds as Mrs. Ed. Mawley (excellent examples), Medea, E. V. Hermanos, Maman Cochet, Rainbow, Carmine Pillar, Mme. Abel Carrière, &c.

HOBBIES, LTD., Dereham, Norfolk, showed pillar Roses, *Vitis Henryana*, and large-flowering Clematis.

Messrs. W. CUTBUSH & SON, Highgate, London, N., showed a group of hardy flowers, a number of greenhouse flowering plants, and vases of well-grown Carnations. Among the hardy flowers were a large batch of *Viola Munbyana*, *Hieracium villosum*, *Eremuri*, &c. *Ericas*, *Hydrangeas*, *Calla Elliottiana*, *Verbenas*, *Roses*, &c., were also well shown. (Silver-Gilt Banksian Medal.)

Messrs. R. WALLACE & Co., Kilnfield Gardens, Colchester, exhibited an array of seasonable hardy flowers, amongst which we noticed *Aquilegias*, *Liliums* in variety, gorgeous-coloured Poppies, *Heucheras*, *Pentstemons*, *Eremurus*, *Dodecatheon media*, and its white form; *Cypripedium californicum*, *Dictamnus fraxinella*, &c. (Silver Flora Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., showed rare and choice hardy flowers. Many beautiful "bearded" Irises were noticed, also *Pyrethrums* in variety, the dwarf *Gypsophila cerastioides* (with pale pink flowers that are marked with red lines), *Ixiolirion tataricum*, *Anemone Pink Pearl*, the beautiful yellow-flowered *Lilium monadelphum Szovitzianum*, *Brodiaea coccinea*, &c. (Bronze Flora Medal.)

Messrs. GEO. JACKMAN & SON, Woking, Surrey, displayed an array of hardy flowers and Alpine plants. A good batch of the red *Lilium davuricum erectum* was noticed. In the centre of the exhibit were plants of the large-flowered Clematis Lady Northcliffe, with lavender-blue-coloured petals; there were also Irises, *Pyrethrums*, Oriental Poppies, some choice blooms of the yellow *Hemerocallis*, and a host of other pleasing subjects.

Messrs. THOS. S. WARE, LTD., Feltham, Middlesex, filled much table space with garden flowers, all of which were shown in good condition. They had examples of *Melittis melissophyllum*, a large labiate flower with violet lip set in a white perianth; *Linum arboreum*, a very handsome yellow-flowered species; *Ostrowskia magnifica alba*, *Campanula glomerata*, *Pyrethrums*, *Pæonies*, Irises, &c. (Bronze Flora Medal.)

Mr. AMOS PERRY, Enfield Chase, Middlesex, showed hardy flowers and plants in great variety. Irises were remarkably fine, and especially good were *I. Susiana*, *I. Lorteti*, *I. sibirica maxima*, and *I. graminea*. Very many Oriental Poppies were included in the exhibit, the colours ranging from very pale pink to the richest scarlet; one of the best is the variety Prince of Orange. Other fine things noticed were *Lindelofia spectabilis*, *Nymphaea alba rosea*, *Phlox canadensis*, Perry's variety; *Anthericum liliastrium giganteum*, and *Lilium monadelphum Szovitzianum*. (Silver-Gilt Banksian Medal.)

Messrs. G. BUNYARD & Co., Maidstone, Kent, showed seasonable hardy flowers, amongst which were seen choice Irises, *Pyrethrums*, Poppies, Lupines, *Pæonies*, *Heucheras*, &c. *Papaver pilosum* has petals a fine coppery-red colour; *Baptisia australis* is a leguminous plant

with blue flowers not unlike those of a Lupin. (Bronze Flora Medal.)

Messrs. GUNN & SONS, Olton, Birmingham, showed a number of herbaceous Phloxes. The inflorescences were not so compact as when grown in the open. The selection included Lady Napier, La Soleil, Eclairer, Indian Chief, &c.

Mr. J. FITT, Frythe, Welwyn, showed vases of a double-flowered form of the common Rocket, named *Hesperis matronalis alba plena*.

Messrs. GILBERT & SON, Dyke, Bourne, Lincolnshire, had showy *Anemones*, interspersed with *Aquilegias* and Iceland Poppies. (Silver Banksian Medal.)

J. A. YOUNG, Esq., Stone House, West Hill, Putney (gr. Mr. G. H. Street), exhibited a batch of herbaceous Calceolarias, and another of *Gloxinias*. (Silver Flora Medal.)

Exhibits of Alpine and hardy flowers were also displayed by the Misses HOPKINS, Hillside Nurseries, Barming; Lady NORTHCLIFFE, Sutton Place, Guildford (gr. Mr. Goatley) (Bronze Flora Medal); Mr. MAURICE PRICHARD, Christchurch, Hants (Silver Flora Medal); Mr. G. REUTHE, Keston, Kent (Silver Banksian Medal); Messrs G. & A. CLARK, Dover (Bronze Banksian Medal); The GUILDFORD HARDY PLANT NURSERY Co., Guildford, Surrey; and Messrs. JOHN PEED & SON, West Norwood, London.

Messrs. G. VAN WAYERIN & KRUIJFF, Sasenheim, Holland, displayed two varieties of *Astilbe* (*Spiraea*) with rose-coloured flowers, named Queen Alexandra and Peach Blossom, the former being the deeper coloured.

Mr. CHAS. TURNER, Royal Nurseries, Slough, staged a small group of plants of a new white Carnation named Lady White.

Messrs. J. CHEAL & SONS, Crawley, Sussex, showed their rose-coloured form of the common garden Lupin that now comes true from seeds.

Sir TREVOR LAWRENCE, Burford, Dorking (gr. Mr. Bain), showed a white-spaced Anthurium named A. X Lawrenceæ.

Hon. Mrs. EVELYN CECIL, 10, Eaton Place, London, S.W., exhibited a yellow *Gloriosa* from Rhodesia, and other South African plants, including a species of *Arum* from Zululand, and a *Hæmanthus* from the same country.

Messrs. BAKERS, 67, 69, 71, Lichfield Street, Wolverhampton, showed some fine flowers of *Aquilegias* with extra long spurs, and in charming shades of colours.

A very fine strain of these flowers was also exhibited by Messrs. DOBBIE & Co., Rothesay, N.B., and Mark's Tey, Essex.

Messrs. WM. PAUL & SON, Waltham Cross, Herts., exhibited a new dark-red flowered Rhododendron named Glory of Waltham. The variety is very floriferous, and the flower trusses are large.

Messrs. CARTER PAGE & Co., 52 and 53, London Wall, London, E.C., showed an assortment of *Fuchsias*, Zonal Pelargoniums, and Cactus Dahlias, with a few vases of the clear, yellow-flowered *Coreopsis grandiflora*.

Messrs. CANNELL & SONS, Swanley, Kent, showed a group of Cannas, in their usual high standard of quality. Some of the best varieties were Franz von Vecsey, Frau E. Kracht, E. Steinkoff, J. B. van der Schoot, Black Prince, and West Grove. Messrs. CANNELL also displayed *Gloxinias* in very large plants that were carrying numbers of well-developed flowers in the rich colours seen in this showy flower. (Silver Flora Medal.)

Messrs. KELWAY & SON, Langport, Somerset, staged garden *Pyrethrums* in great variety, *Pæonies*, and *Delphiniums*. (Silver Banksian Medal.)

Mr. CHAS. W. BREADMORE, Winchester, showed vases of Sweet Peas of such standard varieties as Helen Lewis, Miss M. A. Linzee (rosy pink), Henry Eckford (orange), Countess Spencer (pink), Nora Unwin (white), and Miss Audrey Crier. (Silver Banksian Medal.)

Mr. H. J. JONES, Hither Green, Lewisham, displayed Sweet Peas, amongst which were many seedling varieties.

Messrs. LIBERTY & Co., Regent Street, London, showed garden pottery in sundials, vases, pedestals, flower-pots, &c., in terra-cotta ware and ornamented with artistic designs in relief.

AWARDS OF MERIT

were recommended to the plants named below:

Davallia brasiliensis, Hort.—Messrs. H. B. MAY & SONS exhibited a plant under this name,

having smooth fronds, with attenuated pinnules. This and other plants have been raised from spores from a specimen introduced from Brazil, where it is found in mountain nooks. In this country the plant succeeds well in the greenhouse, and it should make a good subject for the decoration of the dinner-table. The original specimen, we were told, has fronds 4 feet in length. It is distinct in appearance from other *Davallias*.

Hippeastrum "Mrs. Carl Jay."—If for no other quality, this variety was deserving of the Award for the extraordinary floriferousness the plants exhibited. We noticed in one pot, about 5 inches in diameter, three bulbs, two of which had produced one flower scape each, and the other bulb two flower scapes. Some of these bore six flowers, others seven; therefore, from this small pot there were about 26 flowers and buds. In another respect this *Hippeastrum* is interesting, for the white band along the centre of each leaf clearly indicates that it has been derived partly from *H. reticulatum*, a species whose influence can also be seen to a lesser extent in the flowers. These are veined and netted with rose-pink colour on a white ground, much as in the smaller flowers of *H. reticulatum*, the colouring in places almost suffusing over the intervening spaces of white. The leaves are 2½ inches wide, and the flower scapes grow to a height of about 2 feet. A group of plants were shown in a basket by Mrs. CARL JAY, Blendon Hall, Bexley.

Iris X *Caterina* is a hybrid from *I. cypriana* X *I. pallida*, and is capable of growing to 4 feet in height. The flowers are pale mauve-coloured, except the base of each "fall" which is white marked with brown. The yellow anthers are very effective. The hybrid is one that would be suitably planted in the wilder portion of the pleasure grounds, on banks near to water. Shown by Messrs. BARR & SONS.

Iris "paracina."—This is a pretty little *Iris* obtained from a cross between *I. paradoxa* and an unknown variety. It grows about 18 inches high, and produces flowers of moderate size. The three standards are wholly purple, and the falls are of purple, which is prettily veined with white. It is said to have been raised by Mr. Van Tubergen, Junr., of Haarlem, Holland. Shown by Messrs. BARR & SONS.

Lonicera Maackii.—This hardy Honeysuckle from Eastern Asia was described and figured in our issue for April 27 last (p. 265). Shown by Messrs. JAMES VEITCH & SONS, LTD.

Meconopsis racemosa.—Plants of this Chinese species were shown by Lady NORTHCLIFFE, Sutton Place, Guildford (gr. Mr. Goatley). The plant was mentioned in *Gardeners' Chronicle*, September 17, 1904, p. 198, as growing in Messrs. Bee's nursery at Neston. It is somewhat like *M. aculeata*, but has entire leaves about 4½ inches long, whereas those in *M. aculeata* are lobed. The plants shown were 1½ feet high, and growing in 5-inch pots. The flowers were 2½ to 3 inches in diameter, of deep purplish-blue—almost gentian blue. The stems and leaves were thickly covered with rigid, white or greyish, hair-like prickles.

Syringa Josikaea eximia.—This is a very fine variety of the type, having larger panicles of flowers. Sir TREVOR LAWRENCE, Bart. (gr. Mr. W. Bain), who showed flowering sprays, received the plant from M. Lemoine, of Nancy. This fragrant variety is reddish-rose in colour, and is particularly valuable because it flowers after most of the Lilacs have passed out of bloom.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, H. Little, W. Boxall, R. G. Thwaites, Francis Wellesley, F. M. Ogilvie, J. Wilson Potter, A. A. McBean, H. T. Pitt, A. Dye, W. P. Bound, J. Charlesworth, W. H. Young, H. G. Alexander, W. H. White, H. A. Tracy, F. J. Hanbury, and W. A. Bilney.

Messrs. JAS. & A. A. McBEAN, Cooksbridge, arranged a very beautiful group, in which their speciality of fine forms of *Odontoglossum crispum* was the principal feature. At the back were a number of profusely-bloomed plants of *Oncidium macranthum*, covered with their large bright-yellow flowers, and showing the species probably in better condition than it has ever been seen before. Amongst the forms of white

Odontoglossum crispum were some magnificent varieties, the largest being named Goliath. Of the blotched forms were seen *O.c. Empress* of India, and several others as yet unnamed. Between the specimens of *Oncidium macranthum* were well-flowered examples of *Cymbidium Lowianum* and good *Lælia purpurata*, and others noted included a very fine form of *Vanda Sanderiana*, some fine *Cypripedium bellatulum*, the bright scarlet-coloured *Cochlidia Noezliana*, *Odontoglossum cirrhosum*, and other species. (Silver-Gilt Flora Medal.)

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr. Mr. Stables), showed a group of rare and well-grown *Odontoglossums*, among which were two plants of the new *Odontoglossum Leo* (Hallii x triumphans Lionel Crawshay), described in the *Gardeners' Chronicle*, May 26, p. 326; also *O. Souvenir de Victor Hye de Crom*, differing from the original plant of this name in having a clear white labellum; *O. Crawshayanum*, *O. Urania*, *O. bellatulum*, *O. Othello*, two finely-coloured *O. Queen Alexandra*, and other hybrids; good scarlet *Cochlidia Noezliana*, and a magnificent and very dark-coloured form of *O. Harryanum*. (Silver Flora Medal.)

Messrs. CHARLESWORTH & Co., Heaton, Bradford, had an effective and interesting group, the centre of which was occupied by good specimens of *Thunia Veitchiana*, *T. Marshalliana*, and *Phalenopsis amabilis Rimestadtiana*. The hybrid *Odontoglossums* included the original *O. Phoebe*, and the variety magnificent, illustrated in the *Gardeners' Chronicle*, June 1, p. 355. There were also a selection of *Miltonia vexillaria*, *Cochlidia Noezliana*, *Zygopetalum crinitum*, and the beautiful *Z. Roeblingianum*; *Selenipedium caudatum*, *Promenaea xanthina*, with a profusion of pretty yellow flowers; *Dendrobium atro-vioaceum*, *Trichopilia crispa marginata*, *Lælio-Cattleya Canhamiana alba*, *Oncidium phymatoclilum* and other *Oncidiums*; *Aerides Fieldingii* (seldom seen in such fine flower), various pretty and curious species, including a trailing *Platylinis* from Java, *Acanthophippium javanicum*, and the rare Indian *Cryptochilus sanguinea*, bearing an inflorescence of bright red flowers, which somewhat resemble those of the lesser *Tillandsias*. (Silver Flora Medal.)

Messrs. SANDER & SONS, St. Albans, staged an attractive group, in which the beauty and variety of their "Rex" forms of *Lælio-Cattleya Canhamiana* was well displayed, the colours varying from white with crimson labellum, to rosy-lilac with reddish-purple lip. With them were a pretty selection of hybrid *Phaius*, including *P. Phoebe* and *P. Cooksoniae*, both showing the pleasing form of *P. Humboldtii* in the lip; a very fine blue *Vanda cœrulea*, *Lælio-Cattleya Bertha*, the large cream-white and claret-coloured *Maxillaria Sanderiana*, *Brassia verrucosa*, *Odontoglossum cordatum*, and other *Odontoglossums*; a fine specimen of *Dendrobium Falconeri*, another of the handsome *Odontoglossum crispum-Harryanum* of the Brugense class, various *Cypripediums*, &c. (Silver Flora Medal.)

Messrs. HUGH LOW & Co., Enfield, arranged a showy group composed principally of *Cattleya Mossiae* and *C. Mendelii*. Among the former was a fine specimen of *C. Mossiae* "Queen of Denmark" of the *C. M. aurantiaca* class, and similar to the old-time favourite *C. M. McMorlandii*, the lip being, save the whitish-crimped margin, of a bright chrome yellow colour. There were also several white forms of *Cattleya Mossiae*. *C. Mendelii* was shown in great variety, but chiefly of the mauve-purple-lipped class. Others noted were *C. intermedia alba*, *Calanthe veratrifolia*, *Dendrobium Bensoniae*; a batch of *Vanda teres*, two distinct forms of *Cœlogyne Massangeana*, with shorter and denser racemes of flowers than the original; the pretty light-coloured *Lælia purpurata Lowiae*, &c. (Silver Flora Medal.)

Messrs. STANLEY & Co., Southgate, displayed a group of *Cattleya Mossiae* of excellent quality, some of the plants having exceptionally large and richly-coloured flowers. The white *C. Mossiae* *Fieldiae* has chrome-yellow markings on the lip, in front of which are a few pale-purple lines. (Silver Flora Medal.)

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), had a small group of exceptional interest, and including more than forty species and varieties. The *Masdevallias* included *M. tridactylites*, *M. xanthocorys*, *M.*

muscosa, varieties of *M. ignea*; *M. Lindenii*, forms of *M. Chimæra*, and others. The groups also contained two plants of the rose-purple *Saccolabium ampullaceum*, the orange-coloured *S. curvifolium*, *Restrepia elegans*, *Pleurothallis ornata*, *Cypripedium callosum Sanderæ*, *C. seligerum majus*, *C. Curtisii*, *Lælia purpurata*, &c. (Silver Banksian Medal.)

H. S. GOODSON, Esq., Fairlawn, Putney (gr. G. E. Day), sent *Cattleya Mossiae* King Edward VII., a fine dark variety, having a close resemblance to a good form of *C. labiata*; the sepals and petals were of a purplish-rose colour, and the front of the lip was deep crimson. Mr. GOODSON also showed *Lælia purpurata* "Fairlawn," a light variety; and *Cymbidium Huttonii* "H. S. Goodson," a variety with a raceme of yellowish flowers that are densely spotted with blackish-purple.

FRANCIS WELLESLEY, Esq., Westfield, Woking, showed *Cypripedium Lawrenceanum* "Purple Emperor," a very richly-coloured form approaching the variety *Hackbridgensæ*, and with a decided purple shade over the labellum and the rose crimson-tinted dorsal sepal which bears dark chocolate-purple lines from the emerald green base to the margin; also the beautiful *Cattleya Mendelii* "Francis Wellesley." (See Awards.)

Major G. L. HOLFORD, C.I.E., C.V.O., Westnort, Tetbury (gr. Mr. H. G. Alexander), displayed *Cattleya Mendelii* *delicata*, a large and finely-formed blush-white flower, with a chrome-yellow disc to the lip, which also has a distinct light-purplish blotch in the front.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, sent two specimens of *Brassia-Lælia Digbyano-purpurata*, and one of the yellow, rose-tinted *Sobralia Veitchii*.

G. D. BAILEY, Esq., Roseleigh, Burgess Hill, sent a good specimen of *Bifrenaria Harrisoniæ* *alba*, with several flowers.

AWARDS.

FIRST-CLASS CERTIFICATES.

Miltonia vexillaria chelsiensis superba, from Major G. L. HOLFORD, C.I.E., C.V.O., Westnort (gr. Mr. H. C. Alexander). A very distinct and large-flowered form, and the best of the *M. v. radiata* class. The flowers are broadly-ovate in outline, and are of a delicate Peach-blossom tint, the bases of the petals being rose colour. The broad, triangular mask at the base of the lip is composed of several confluent lines of a claret-crimson colour, the central one being the longest. There are also three similarly coloured lines on the lower half of the petals. The plant shown was a finely-grown specimen with four flower-spikes—three bearing five flowers each, and one four flowers.

AWARD OF MERIT.

Cattleya Mendelii "Francis Wellesley," from FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins). A charming and delicately-tinted flower of large size and of perfect form. The flowers are white, with a slight suffusion of blush-pink. The base and disc of the lip has chrome-yellow lines, and the front has a slight freckling of rosy-lilac. The plant is a robust grower and carried several finely-developed flowers.

Fruit and Vegetable Committee.

Present.—Geo. Bunyard, Esq. (chairman), and Messrs. W. Bates, Geo. Woodward, A. Dean, H. Parr, A. R. Allan, Ed. Beckett, R. Lye, Jas. Vert, H. Markham, Jno. Lyne, Geo. Kelf, P. D. Tuckett, Owen Thomas, W. Poupert, Geo. Reynolds, and J. Davis.

The principal exhibit before this committee was a collection of about three dozen Melons in seven varieties and one seedling, shown by Lady NORTHCLIFFE, Sutton Place, Guildford (gr. Mr. Goatley). The fruits were a fine sample, and included Ringleader, Hero of Lockinge, Superlative, The Peer, &c., and they were interspersed with small foliage plants. (Silver-Gilt Knightian Medal.)

Miss C. M. DIXON, Elmcroft Nursery, Westergate, Chichester, showed several fruits of a yellow-skinned, netted Melon named Swanley Horticultural College Seedling. (Silver Banksian Medal.)

Mr. S. MORTIMER, Rowledge, Farnham, Surrey, showed boxes of a dark-skinned Cucumber named Market Rival. The fruits were an excellent sample, about 18 inches in length, somewhat thick, and with a tapering "handle."

ROYAL BOTANIC.

JUNE 12, 13, 14.—An interesting exhibition of plants and cut flowers was held on the above dates in the gardens of the society, Regent's Park.

Messrs. PAUL & SON, Waltham Cross, made a fine display of Roses growing in pots and as cut bloom; climbing varieties and forms of *Rosa polyantha* formed the more entrancing objects in the group, and we noted fine flowered examples of Wedding Bells, Crimson Rambler, Lady Gay, Debutanté, Rubra, Waltham Rambler, Waltham Bride, Kathleen, and Sweetheart, and the single-flowered white Rose Nymph. Hybrid Perpetuals, such as Spenser, Merveille de Lyon, A. Colomb, Etoile de France, Ella Gordon, Baroness Rothschild, Crimson Queen, and Teas and Hybrid Teas Mme. de Watteville, Beatrice, Souvenir du President Carnot, Earl of Warwick, Celina, Maman Cochet, and Tennyson, made up the major portion of the exhibit. The plants showed their beauties well enough individually, but there was something wanting to make the group effective as such; perhaps there was too much bloom and no foliage other than that of the Roses to serve as a foil. (Large Gold Medal.)

Mr. GEO. MOUNT, Exotic and Rose Nurseries, Canterbury, exhibited extensively climbing Roses, such as Hiawatha, Leuchtstern, Lady Gay, Crimson Rambler, &c. The finest features of the exhibit were the cut blooms, especially fine being those of Ulrich Brunner, Frau Karl Druschki, Mrs. John Laing, Caroline Testout, Richmond, Captain Haywood, and Mrs. Sharnman Crawford. Many other varieties were shown of fine quality, and in great numbers. (Large Gold Medal.)

Mr. S. MORTIMER, The Nurseries, Rowledge, Farnham, exhibited American Carnations in fine form. We noted Lady Bountiful, a large fimbriated white flower; Nelson Fisher, similar in form, and of deep rose-pink colour; America, a regularly formed bloom, bright scarlet in tint; Thos. W. Lawson, Fair Maid, Norway, and other beautiful varieties.

Mr. MORTIMER also showed a new Cucumber Market Rival, a handsome, dark-green, spineless fruit, 18 inches long. (Large Silver Medal.)

Messrs. G. JACKMAN & SONS, Woking Nursery, Surrey, showed a large collection of Iris in variety, a few well-bloomed plants of Clematis Lady Northcliffe, a large single-flowered novelty; many varieties of Pyrethrum roseum, Papavers, including Princess Victoria Louise, a cherry-red, semi-double flower, &c. (Large Silver Medal.)

Messrs. HUGH LOW & Co., Bush Hill Nurseries, London, N., showed Carnations, English, American, and Souvenir de la Malmaison varieties. The English-raised Carnation Britannia, of a scarlet colour, was shown in fine form; also Leander, Fiancée, Princess of Wales, a "Malmaison" of light rose tint; and Mrs. Burnett, of a soft rose colour, and with slightly dentate edges. The collection was rich in "Malmaison" varieties, and the striped Sir Evelyn Wood was extremely well shown, also the pure white Nell Gwynne, and pink-coloured Baldwin. A specimen plant of "Malmaison" Princess of Wales possessed 56 flowers and buds. Some well-flowered plants of *Callistemon foribunda* were noted in this collection. (Gold Medal.)

Messrs. JOHN PEED & SON, West Norwood Nurseries, showed miscellaneous border plants in large numbers, including Iris and Pyrethrums, in great variety. Gloxinias in innumerable variety of colour, and all of the erect type, were also shown by Messrs. PEED. (Silver-Gilt Medal.)

Messrs. THOS. WARE & Co., LTD., Feltham, showed a comprehensive collection of hardy perennials as cut blooms, and small plants, Iris, Papaver, Pyrethrum, and Pæonia being the more conspicuous species. (Silver-Gilt Medal.)

Mr. H. CRANE, Highgate, a well-known grower of Violas and fancy Pansies, showed 36 bowls full of blooms of these plants. (Silver Medal.)

Mr. M. PRICHARD, Christchurch, Hants, showed hardy perennials as cut bloom, Eremuri, Irises, and Pyrethrums being the chief subjects. (Large Silver Medal.)

A fine and varied collection of Sweet Peas came from Mr. C. W. BREADMORE, Winchester, the flowers being large and of good substance. There were many varieties having charming colours and tints among them. (Gold Medal.)

HOBBISS, LTD., Dereham and London, showed a number of Rambler and Polyantha Roses arranged as a group for effect. (Silver Medal.)

Mr. C. F. WATERS, Deanland Nursery, Balcombe, Sussex, exhibited Carnations of all types in a rich collection containing the latest novelties amongst these flowers. (Large Gold Medal.)

Mr. AMOS PERRY, Hardy Plant Farm, Enfield, showed large-flowered Papavers and Pyrethrum roseum in variety; a good variety of Papaver orientale is Mrs. Perry, a single-flowered variety, with satiny-pink petals that have a black blotch at the base. The new single-flowered variety Princess Ena was likewise shown. It has small cup-shaped flowers of a salmon-pink tint. Iris pallida, a new cross between *I. iberica* and *I. pallida*, was observed here. (Silver-Gilt Medal.)

Mr. G. REUTHE, Keston, Kent, showed a large miscellaneous collection of hardy perennials as cut bloom. Flowering shoots of *Embothrium coccineum* and *Rhododendron cinnabarinum* were included in the exhibit. (Silver-Gilt Medal.)

Mr. R. RASMUSSEN, Eastville Nurseries, Waltham Cross, showed Petunias in wonderful variety. (Large Silver-Gilt Medal.)

Mr. G. & A. CLARK, of Dover, showed Pyrethrum roseum, both single and double-flowered varieties; Iris in variety, and miscellaneous hardy perennials as cut bloom; the exhibit was a collection rich in good plants. (Silver Medal.)

Messrs. BARR & SONS, King Street, Covent Garden, showed Japanese pygmy trees, Conifers and Acers; also hardy flowers, including Irises Pyrethrums, and miscellaneous hardy perennial plants as cut bloom. (Gold Medal.)

Ed. WAGG, Esq., The Islet, Maidenhead (gr. Mr. D. Phillips) showed a number of *Souvenir de la Malmaison* Carnation Princess of Wales, almost as many of *C. Cecilia*, a lemon-yellow coloured flower and tall grower, and *Calypso*, a pale flesh-tinted variety. (Gold Medal.)

Messrs. T. S. RIVERS & SON, Sawbridgeworth, Herts, showed some well-fruited trees of Nectarines, Peaches, Plums, Cherries, including the new Peaches Duke of York and Peregrine. (Gold Medal.)

S. HEILBUT, Esq. (gr. Mr. G. Camp), The Lodge, Holyport, Maidenhead, showed a splendid collection of fruit trees in pots. (Gold Medal and Special Prize.)

COLONIAL EXHIBITS.

South Australian produce.—Exhibited by the AGENT-GENERAL FOR SOUTH AUSTRALIA, Threadneedle House, London, E.C. This exhibit consisted of red and white wines in bottle, honey in the run state, Apples and Pears of large size, fine colour, and clear in the skin. The fruits were exclusively dessert varieties. We tasted a fruit of *Winter Nelis*, and found it to be excellent. There were specimens of *Mme. Cole*, *Broom Park*, and one other Pear without a name. Among Apples we noted *Strawberry Pippin*, *Shortland's Eclipse*, *Prince Alfred*, *Scarlet Nonpareil*, *Schröder*, *Hoover*, *Esopus Spitzbergen*, *Northern Spy*, *Dunn's Seedling*, *Stone Pippin*, and *Garibaldi*, also a dish of large Quinces.

An exhibit of wines from South African vineyards was made by **Messrs. J. SEDGEWICK & Co.**, colonial wine and spirit merchants and distillers, of Cape Town, whose London agents are **Messrs. JEREMIAH LYON & Co.**, 4, Lombard Court, E.C.

Messrs. R. JACKSON & Co., direct importers, 172, Piccadilly, London, W., had an interesting exhibit of South African products. There were preserved fruit as whole fruits and as jams and jellies, jams from the Cape Gooseberry; from Plums, Green Figs, Grape, Pineapple, Peach, and other fruits. Natal tea is another product of South Africa sold by this firm that is making its way in this country, selling at 1s. 10d. per lb. It is intermediate between the Chinese and Indian teas.

THE HORTICULTURAL CLUB.

"OUR WONDERFUL WORLD."

JUNE 11.—The final meeting of the season was held at the Hotel Windsor on the above date, and, after the usual dinner, at which Mr. Harry J. Veitch presided, Mr. Chas. T. Druery, V.M.H., F.I.S., read a paper entitled "Our Wonderful World." In this paper Mr. Druery condensed a description of the earth's origin, taking the nebular hypothesis for granted, and divided his discourse into four headings—the

Earth, the Aerial Ocean, the Aqueous Ocean, and the Life which exists in and upon all three. Handling so inexhaustible a theme in this way, he was enabled to give, in treating each section, a glimpse of the wonders involved in geological records, which demonstrate beyond doubt the most incredible changes of scene within the same area, citing as an instance the chalk hills of Kent and the coal formations below them as testifying to the existence at different periods at the same place of immense forests, an ocean, and now of a broad prospect of hill and dale, which was once that ocean's bed. The aerial ocean, at the bottom of which we live, has its points of similarity with the watery ocean in its currents and whirlpools represented by winds and cyclones. The gaseous composition of both air and water was described, and the wonderful differences brought about by different conditions of gaseous admixtures alluded to, the very air we breathe being a mixture of precisely the same gases oxygen and nitrogen as constitute that most corrosive acid (nitric acid), while the innocuous nitrogen of the air, a mere diluent of the too active oxygen, is the basis of the most powerful explosives.

It was, however, the life in our wonderful world which appealed most to one's sense of the marvellous, and the lecturer demonstrated how the history of the cell, the basis of life, tended to support the doctrine of evolution, the chain of progress being repeated in every individual. Nor were we only indebted to cell action for our own existence and that of all other organic life, but the by-products, as it were, formed the bulk of our surroundings, providing the materials by which we are fed, clothed, and, to a large extent, housed. Even our thoughts, he pointed out, and all that thought leads to in the way of invention, etc., are due to subtle cell activity in our brains, the culmination, as it were, of the wonders involved in creation generally. The lecturer concluded with some lines written by him nearly 40 years ago.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

JUNE 10.—The monthly committee meeting of this society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on the above date. Mr. Charles H. Curtis presided, and five new members were elected, making a total of 48 this year. The stocks of the society have been duly transferred from the old to the new trustees. Sympathy and condolence were expressed with the widow and family of the late Mr. George Wheeler, who was one of the original members of the society, and had held the office of trustee for 31 years, and from which he had just retired.

ELAÏS GUINEENSIS VAR. LISOMBE.—This variety of the oil Palm, as we learn from the *Gartenflora* for May 15 last, in a report of the Prussian States Horticultural Society's meeting on April 21, was discovered several years ago by the celebrated African traveller and collector, Professor Dr. PREUSS, in the Lisombe forest in the Cameroon territory, and was introduced to the Botanic Garden at Victoria, of which he was earlier the director. It was stated at the meeting by **HRN. KLAR** that the seeds are ground, and the oil thus obtained smells very strongly of Violets, and is consumed as food and also made into soap (Elaine). This new introduction is in every particular better, and in oil production more abundant, than the common oil Palm. The demand for the seeds is considerable, but the supply is at the present time small; moreover, the variety is not in commerce. The British Colonies are almost exclusively supplied by the ordinary oil Palm tree, and that most abundantly. In appearance the seeds of the new variety do not differ from those of the type.

CATALOGUES RECEIVED.

JAMES DYSON & Co., Atlas Works, Elland—Dyseleine Insecticide.

FOREIGN.

JULIUS ROHRHS Co., Exotic Nurseries, Rutherford, New Jersey—Orchids, Stove and Greenhouse Plants, and Nursery Stock.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 8, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather was generally cloudy or overcast, with frequent and sometimes heavy rain in the northern and western districts, and with occasional slight falls in the south and south-east. Thunderstorms occurred over a large part of England on Wednesday, and in some places on Tuesday and Friday, and at Chester a thunderstorm was experienced at the commencement of the week.

The temperature was again below the average, the defect ranging from rather more than 1° in England E. to about 8° in several other English districts and in Ireland N., and to more than 4° in Scotland N. and E. The highest of the maxima were mostly recorded on Saturday, and ranged from 70° in the Midland Counties to 64° in Ireland N. and Scotland E., and to 63° in Scotland W. During the early days of the period some of the maxima were again below 50° in the north. The lowest of the minima, which occurred during the earlier half of the week, varied from 33° in the north and east of Scotland to 44° in Ireland S., and to 48° in the Channel Islands. At some of the Scottish stations and at Cockle Park, Morpeth, the thermometer on the grass fell to 30° or 31°.

The mean temperature of the sea.—The water was rather colder than during the preceding week on nearly all parts of the coast, the loss of heat being more than 1° at some Scottish stations and 0·8° at Margate. The mean temperature ranged from 65° at Newquay and 54·6° at Eastbourne to about 62° off the east of England, and to less than 48° on the coasts of Scotland and north-eastern England. The lowest reading was 45·8° at Burnmouth.

The rainfall was less than the average over eastern, central, and southern England, and also in the English Channel; elsewhere it was above it, the excess being very large in the western and northern districts. On the 2nd and 6th a fall of 1 inch was measured at Stonyhurst, and on the 4th a similarly large fall occurred at Aspatia.

The bright sunshine was less than the average in all parts of the kingdom. The percentage of the possible duration was only 8 in England N.W. and Scotland W. and 18 in Scotland N.; elsewhere it ranged from 15 in Scotland E. to 27 in England S., and to 29 in the English Channel.

THE WEATHER IN WEST HERTS.

Week ending June 12.

Frequent showers. The days have been, as a rule, somewhat cool for the time of year, while the night readings have been, on the contrary, mostly rather above the average. On the warmest day of the week the temperature in the thermometer screen rose to 73°, and on the coldest night the exposed thermometer fell to within 6° of the freezing point. The ground is not now so cold as it has lately been, being both at 1 and 2 feet deep only 1° colder than is seasonable. Rain fell on all but one day, and to the total depth of three quarters of an inch. On the 5th inst., during a brief but very heavy shower, the rain was falling for a minute at the very exceptional rate of 8 inches an hour. Percolation through both soil gauges still continues. Since the beginning of the month about two gallons of rain-water has come through both gauges. The sun shone on an average for 6½ hours a day, which is about a seasonable duration for the middle of June. The wind has been moderately high throughout the week, and has come almost exclusively from some point between south and west. The mean amount of moisture in the air at 8 p.m. was 1 per cent. less than a seasonable quantity for that hour. A large bush of the wild Dog Rose came into flower in my garden on the 7th inst., which is two days later than the average for the previous 21 years, and the same date as last year. *E. M., Berkhamsted, June 12, 1907.*

DEBATING SOCIETIES.

WARGRAVE AND DISTRICT GARDENERS'.—The last meeting of this association of the season was held on Wednesday, May 29, when Mr. H. Stoten, of Bearwood Gardens, read a short paper on "The Culture of the Persian Cyclamen." Cultural directions, including advice on seed sowing, suitable soils, potting, manuring, and pests were carefully dealt with in the paper.

BRISTOL AND DISTRICT GARDENERS'.—The first meeting of the summer session of this association was held on Thursday, May 30, when W. E. Budgett, Esq., presided over a good attendance. The subject of the lecture was "Alpine Plants," the lecturer being Mr. J. C. House, Westbury-on-Trym, who staged many Alpine plants to illustrate his remarks. To those persons about to build a rockery, he suggested a visit to Clifton Downs, for the purpose of obtaining a lesson from nature in the manner of constructing a rock-garden. Mr. House gave advice on the management of Alpine plants and gave a list of those that should be frequently moved and others that should not be disturbed; he also mentioned subjects suitable for sunny, shady, and moist positions, and gave the names of suitable shrubs for planting between them. Mention was made of the pretty little *Scilla autumnale*, some plants of which were given by a lady to Mr. Brunel, the noted engineer, who, when building Clifton Suspension Bridge, planted them in an almost inaccessible part of St. Vincent's Rocks, where they are still growing. *H. W.*

SCHEDULES RECEIVED.

LYDNEY HORTICULTURAL AND COTTAGE GARDEN SOCIETY'S 2nd annual exhibition to be held in the Lydney Town Hall, on Saturday, July 27, 1907.

CAMBRIDGESHIRE HORTICULTURAL SOCIETY'S summer show to be held on Tuesday, July 9, in the Fellows' Gardens, Trinity College, Cambridge, and autumn show to be held in the Corn Exchange, Cambridge, on Wednesday and Thursday, November 6, 7.

MARKETS.

COVENT GARDEN, June 12.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—ED.]

Cut Flowers, &c.: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Azalea Fielderi, per dozen bunches	2 0-8 6	Myosotis, per doz. bunches	1 6-2 0
— mollis, per doz. bunches	4 0-6 0	Narcissus, per doz. bunches	2 0-3 0
Anemones, per doz. bunches	3 0-4 0	— poeticus, per dozen bunches	1 0-2 0
Bouvardia, per doz. bunches	4 0-6 0	Odonoglossum crispum, per dozen bunches	2 0-2 6
Calla aethiopica, p. dozen	1 6-2 6	Paeonies, per doz. bunches	5 0-9 0
Carnations, per dozen blooms, best American various	2 6-5 0	Pancratium, d. fl. show, per doz. bunches	4 0-6 0
— smaller, per doz. bunches	12 0-18 0	— Zonal, double scarlet	4 0-6 0
— Malmaisons, p. dozen blooms	6 0-10 0	Poppies, Iceland, doz. bunches	6 0-12 0
Cattleyas, per doz. blooms	10 0-12 0	— Oriental	6 0-9 0
Cornflower, per doz. bunches	3 0-4 0	Pyrethrums, per dozen bunches	2 0-4 0
Eucharis grandiflora, per doz. blooms	3 0-4 0	Ranunculus, per dozen bunches	4 0-6 0
Gardenias, per doz. blooms	1 0-2 0	Rhodanthe, per doz. bunches	3 0-4 0
Gladiolus, The Bride, d. bchs.	6 0-9 0	Roses, 12 blooms, Niphetos	1 0-3 0
Gypsophila elegans p. doz. bunches	3 0-4 0	— Bridesmaid	2 0-3 0
Iris, German, per doz. bunches	4 0-6 0	— C. Testout	2 0-3 0
— Spanish, p. doz. bunches	4 0-9 0	— General Jacqueminot	1 0-2 0
Lilac, white, per bunch	1 0-3 0	— Kaiserin A. Victoria	1 6-3 0
Lilium auratum	2 0-3 0	— Mrs. J. Laing	2 0-4 0
— candidum, bch.	1 0-2 0	— C. Mermet	2 0-4 0
— lancifolium, rubrum and album	1 6-2 0	— Liberty	2 0-4 0
Lily of the Valley, p. doz. bunches	6 0-9 0	— Mad. Chateau	2 0-3 0
— extra quality	10 0-15 0	Stephanotis, per dozen trusses	4 0-6 0
Marguerites, white, p. doz. bunches	2 0-3 0	Stocks, per dozen bunches	2 0-3 0
— yellow, per doz. bunches	1 6-2 0	Sweet Peas, p. doz. bunches	2 0-5 0
Mignonette, per doz. bunches	3 0-4 0	Tuberose, per doz. blooms	0 4-0 6

Cut Foliage, &c.: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Adiantum cuneatum, per dozen bunches	4 0-6 0	Galax leaves, per dozen bunches	2 0-2 6
Asparagus plumosus, long trails, per doz. bunch	6 0-9 0	Hardy foliage (various), per dozen bunches	3 0-9 0
— medium, per doz. bunch	1 6-2 0	Ivy-leaves, bronze	2 0-2 6
— Sprengeri	0 6-1 0	— long trails, per bundle	1 6-3 0
Berberis, per doz. bunches	2 0-2 6	— short green, doz. bunches	2 0-3 0
Croton leaves, bch.	1 0-1 6	Moss, per gross	4 0-5 0
Cycas leaves, each	1 6-2 0	Myrtle (English), small-leaved, doz. bunches	4 0-6 0
Fern, English, per dozen bunches	2 0-3 0	— French, dozen bunches	1 0-1 6
— French, dozen bunches	2 0-4 0	Smilax, p. doz. trails	2 0-3 0

Plants in Pots, &c.: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Ampelopsis Veitchii, per dozen	6 0-8 0	Cyperus laxus, dz.	4 0-5 0
Aralia Sieboldi, dz.	4 0-6 0	Drazenas, per doz.	9 0-24 0
— larger	9 0-12 0	Erica Cavendishi, per dozen	24 0-36 0
Araucaria excelsa, per dozen	12 0-30 0	— candidissima	18 0-24 0
Aspidistra, green, per dozen	18 0-30 0	— persoluta alba	24 0-30 0
— variegated, dz.	30 0-42 0	— ventricosa, per dozen	18 0-30 0
Asparagus plumosus nanus, doz.	9 0-12 0	Euonymus, per dz.	4 0-9 0
— Sprengeri, doz.	9 0-12 0	Ferns, in thumbs, per 100	7 0-10 0
— tenuissimus, per dozen	9 0-12 0	— in small and large 60's	16 0-25 0
Azalea mollis, each	2 0-3 6	— in 48's, per dz.	4 0-10 0
Boronia megastigma, per dz.	12 0-30 0	— in 8's, per dz.	10 0-18 0
— heterophylla	12 0-24 0	Ficus elastica, per dozen	9 0-12 0
Calceolarias, herbaceous, p. dz.	5 0-8 0	— repens, per doz.	4 0-6 0
— yellow	6 0-9 0	Fuchsias, per doz.	6 0-9 0
Callas, per doz.	9 0-12 0	Heliotropiums, per dozen	5 0-8 0
Clematis, per doz.	8 0-9 0	Hydrangea Thos. Hogg, per doz.	12 0-18 0
— in flower	12 0-18 0	— Hortensia, per dozen	8 0-12 0
Cocos Weddelliana, per dozen	9 0-18 0	— paniculata, per dozen	12 0-30 0
Coleus, per dozen	4 0-6 0	Kentia Belmoreana, per dozen	12 0-18 0
Crassulas (Kalo-anthes), per dz.	9 0-12 0	— Fosteriana, p. dozen	12 0-21 0
Crotons, per dozen	12 0-30 0	Latania borbonica, per dozen	12 0-18 0
Cyperus alternifolius, dozen	4 0-6 0		

Plants in Pots, &c.: Average Wholesale Prices (Contd.)

s.d.	s.d.	s.d.	s.d.
Lilium longiflorum, per dz.	12 0-24 0	Petunias, double, per dozen	4 0-8 0
— lancifolium, per dozen	12 0-18 0	— single, per doz.	8 0-10 0
Lily of the Valley, per dozen	12 0-18 0	Rhodanthe, per dz.	4 0-6 0
Lobelia, per dozen	5 0-8 0	Rhododendrons, per doz.	24 0-36 0
Marguerites, white, per dozen	4 0-8 0	Roses, H.P.s., per dozen	12 0-24 0
Mignonette, per dz.	5 0-8 0	— Rambles, each	5 0-21 0
Musk, per dozen	4 0-5 0	Saxifraga pyramidalis, per dozen	12 0-18 0
Pelargonium, Ivy-leaved, Mde. Crousse and Galilee, p. dozen	6 0-8 0	Selaginella, dozen	4 0-6 0
— Zonals, per dz.	4 0-6 0	Spiraea japonica, per doz.	4 0-6 0
— show	9 0-12 0	Stocks (intermediate), per doz.	5 0-6 0

Fruit: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Apples, per box, Tasmanian	8 6-9 0	Grapes (English), Hambro's, p. lb.	1 0-2 0
— London Pippins	8 6-9 0	— English Muscats, per lb.	1 6-5 0
— Scarlet Pear-mains	9 6-11 0	— Belgian Hambros, per lb.	1 0-1 6
— Ribstons	9 6-10 6	Lemons: Messina, case	8 0-14 0
— Scarlet Nonpareils	8 0-9 0	— Naples, p. case	22 0-30 0
— Sturmer Pippins	9 0-11 0	Lyches, per box	1 0 —
— French Crabs	7 0-8 0	Mangoes, per doz.	18 0-24 0
— Cox's Orange Pippins	18 0-30 0	Melons (Guernsey), each	1 0-2 6
— Alexandras	7 6-8 6	Nectarines (English), per doz.	3 0-12 0
— Prince Alfreds	9 0-9 6	Nuts, Cobnuts, per doz. lb.	8 0 —
— Alfretons	8 0-8 6	— Almonds, bags	54 0 —
— Australian, box	8 0-10 6	— Brazils, new, per cwt.	40 0-42 6
— Monro's Favorite, per box	8 0-10 6	— Barcelona, per bag	32 6 —
— Roman Beauty	8 6-9 6	— Cocoa nuts, 100	12 0-17 0
— Cleopatra	11 0-12 6	Oranges, per case: Palermo, 100's, box	6 0-6 6
— Jonathans	10 6-12 0	— Valencia	17 0-22 0
— Ribstons	9 6-10 6	— Navela	10 0-10 6
— New York Pippins	10 0-12 0	— Jaffa	12 0-14 0
— Five Crowns	8 0-9 0	— St. Michaels, per box	6 0-10 0
— Cox's Orange Pippins	12 0-16 0	— Palermo, 100's, boxes	6 0-9 0
— Ryders	9 0-9 6	— Murcia, box	8 0-14 0
Apricots (French), per box	1 8-1 9	Pears (California), per case	10 0-12 0
— French, cases	2 6-3 6	— Australian, per bble. of 8 boxes	8 0-12 0
Bananas, bunch: No. 2 Canary	5 0 —	Peaches (English), per dozen	8 0-18 0
— No. 1	6 0-6 6	Pineapples, each	2 6-4 0
— Extra	7 0-8 0	Strawberries (English), (a) per lb.	2 0-3 6
— Giants	8 0-10 0	— (b) per lb.	1 0-1 6
— Jamaica	6 0-7 6	— English, per basket	5 0-8 0
— Loose, per dz.	0 9-1 3	— French, per crate of 4 baskets	10 0-12 0
Cherries (French), box	1 0-2 0		
— French, ½ sieve	3 6-6 6		
— squares	2 6-2 9		
Cranberries, p. case	8 0-8 6		
Dates (Tunis), doz. boxes	2 6 —		
Figs (Guernsey), per dozen	2 0-6 0		
Gooseberries (English), ½ sieve	8 0-4 0		
Grape Fruit, case	19 0-22 0		

Vegetables: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Artichokes (French), per dozen	2 0-2 6	Mushrooms (house), per lb.	0 6 —
Asparagus (English), p. bundle	1 8-1 9	— buttons, per lb.	0 7-0 8
— Toulouse, per bundle	1 8-1 6	— "Broilers" p. lb.	0 6 —
— Montauban, p. bundle	1 8-2 0	Mustard and Cress, per dozen pun.	1 0-1 6
— French Giant, per bundle	5 0-6 0	Onions (Valencia), case	6 0-7 0
Beans, Jersey, p. lb.	0 9-1 0	— pickling, per bushel	2 0-2 6
— Broad (French) pad	3 6-4 0	— Spring, pr. dz. bunches	1 6 —
— Home-grown, per lb.	0 9-1 0	— Egyptian, bag	6 0-6 6
Beetroot, bushel	1 0 —	— French, ½ bag	2 6 —
Cabbages, per doz.	0 9-1 0	Peas (French), per packet	0 4-0 6
Cabbage Greens, bag	1 0-1 6	— French, per crate	8 0-4 0
— red, per dozen	2 0 —	— French, per ad	2 6-8 0
Carrots, French pad	2 0-2 6	— English, pr. lb.	0 9-1 8
— French, new, per bunch	0 4-0 5	Parsley, 12 bunches	1 6-2 0
— per bag, unwashed	2 6-3 0	— ½ bushel	1 0-1 6
— washed	5 0-6 0	Parasips, per bush.	1 8 —
Cauliflowers, per tally	10 0-12 0	— per cwt.	8 0-9 0
— per dozen	2 0-2 6	Radishes (Guernsey), per dozen	0 4-0 6
Celery, per dozen bundles	6 0-10 0	Rhubarb (English), natural, per dz.	1 0-1 6
Chicory, per lb.	0 24-0 3	Salsify, p. dz. bdl.	8 6 —
Chow Chow (Szechium edule), dz.	8 0 —	Seakale, doz. pts.	7 0-10 0
Cucumbers, p. doz.	2 0-3 0	Spinach, English, per bushel	0 9-1 0
Endive, per dozen	0 9-1 0	Tomatoes:—	
Horseradish, foreign, dz. bndl.	12 0-18 0	— Canary, per bundle	6 0-8 0
Leeks, 12 bundles	1 6 —	— selected, per dozen lbs.	4 0 —
Lettuce (English), Cos, per score	0 4-0 6	— small selected, per dozen lbs.	3 6-3 9
Marrows (English), per dozen	4 0-7 0	Turnips (French), new, per bunch	0 3-0 4
Mint, per dozen bunches	2 0-4 0	Watercress, per doz. bunches	0 4-0 6

REMARKS.—The largest shipment of Australian Apples received this season arrived during the past week, and in consequence prices for most varieties are considerably lower. French Cherries are now very plentiful and much cheaper. English Tomatoes are seen in increased quantities, and prices realised are lower than those of most previous

years at a corresponding season. A good demand exists for best home-grown Strawberries; a large quantity of inferior fruits of Strawberries are seen, but they have practically no demand. P. L., Covent Garden, Wednesday, June 12, 1907.

POTATOS.

Blacklands, 85s. to 95s.; Lincolns, 100s. to 110s.; Yorks, 100s. to 115s.; Scotch, 100s. to 110s.; Dunbars, 110s. to 120s.; Dutch (bag), 4s. to 4s. 6d.; German (bag), 4s. 6d. to 5s.; Jersey, 7s. to 7s. 6d. per cwt.; St. Malos, 7s.; Teneriffe, 7s. to 8s. The trade is normal for the season. W. J. C. & S., Covent Garden, June 12, 1907.

COVENT GARDEN FLOWER MARKET.

Large supplies of most plants are still seen, but stocks of a few things are short, and care is needed in accepting orders for some plants. Large quantities of Hydrangeas are seen, and this morning many were left unsold, especially plants of H. Hortensia. The variety Thos. Hogg is not quite so plentiful, but H. paniculata grandiflora is taking its place. Rambler Roses are of good quality, but they do not clear well. Some very good plants of hybrid perpetual Roses are to be had, and dwarf Polyantha varieties are well flowered. Lilium longiflorum may be procured in pots from 8 inches up to those containing three or four bulbs and measuring 8 inches. Marguerites may be had in all sizes; those grown for decorative purposes are now very good, and young plants for window boxes and bedding purposes are of the best quality. Standard Fuchsias are plentiful this season. Zonal Pelargoniums may be had in all the leading sorts, in well-flowered plants; the Ivy-leaved and the show varieties are also well supplied. The new double-flowered Lobelia is more suited for edging flower-beds than for window-box decoration, but well-flowered pot plants would command a sale. Growers often spoil the trade for a new plant through being in too great a hurry in marketing it. Yellow Calceolarias are good. Intermediate Stocks are now practically over for the season. Both single and double varieties of Chrysanthemum segetum are seen in well-flowered plants. A few good Yellow Marguerites are procurable. There is but little variation in supplies of foliage plants. Trade generally is uncertain for all pot plants.

CUT FLOWERS.

Supplies are still over abundant. Best Roses clear out fairly well and Carnations have a rather better demand, the Malmaisons are now very good, but prices for these flowers are much lower when compared with those of a few years ago. The very finest are certainly dear, but flowers of second quality are difficult to dispose of for satisfactory prices. The double white Narcissus may be finished at any time now. Spanish Irises are good and plentiful. Herbaceous Pyrethrums are coming from some growers in wagon loads, and they include some of the finest varieties of both single and double forms. Gladiolus Colvillei alba, and also the hybrid varieties are good. Sweet Peas are abundant, and only those of best quality and with long stems are valuable. Tulips are nearly over for the season, which has lasted for fully seven months. One grower exhibited a bunch of Chrysanthemums for sale a morning or two since. A. H., Covent Garden Market, June 12, 1907.

Obituary.

ERNEST A. CANNELL.—We regret to record the death on Tuesday, 4th inst., of Mr. ERNEST A. CANNELL, youngest son of Mr. HENRY CANNELL, Swanley. The deceased gentleman was an active member of the firm of Messrs. CANNELL & SONS, and he devoted much time to the development of the Cockmanning Nurseries of the firm at St. Mary Cray. The late Mr. CANNELL, who was 40 years of age, was engaged in the business until within a few hours of his death. He leaves a widow and two children.

ANSWERS TO CORRESPONDENTS.

* * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

APPLE SHOOTS CURLED: J. T. S. The effect of injury by frost followed by bright sun killed one side of the imperfectly ripened shoots; the opposite side continued to grow and thus caused the twisting.

ASTERS DISEASED: F. E. S. & Co. The seedlings arrived in a dead and shrivelled condition, and were not sufficiently fresh to enable the cause of their failure to be determined.

BOOKS: A. B. The Glossary of Botanic Terms is not an illustrated work. It is a list of botanical terms and not of plant names. The Botanical Dictionary, by Sir Joseph Paxton, is out of print, and can only be obtained from the second-hand booksellers. The best garden dictionary is Nicholson's Dictionary of Gardening: a cheaper but good work is Johnson's Gardeners' Dictionary. Both of these books may be obtained from our publishing department.—Weekly Reader. Begonia Culture, by B. R. Ravenscroft, will suit your purpose. This work can be obtained from our publishing department, price 1s. 2d., free by post.

BULBS FOR FORCING: A. R. B. If you have the use of the houses from November to March only, we doubt if it is wise for you to force Irises at all. Had you the use of frames in addition to the continuous use of the houses the Iris crop would come in useful enough as a succession to the earliest forced Daffodils. Irises cannot be successfully forced in the ordinary way because they require a long season of preparation. The boxes will do quite well and are more satisfactory for the purpose than any other receptacle. Bulbs planted below ground in the greenhouse are of little value for purposes of early forcing, and remain far too long uninfluenced by the internal conditions of the house. A frame, or frames, beside the greenhouses on the south side, would be best for the Iris crop till early in February, at which time the greenhouse and the temperature you name (50°) would prove suitable. It is impossible to say whether these would be more remunerative than last year's crop, for no two seasons are alike in this respect. There should be more profit on the large number of bulbs you forced, but, although we know the dates on which they flowered were moderately early, you do not state whether or not the bulbs flowered satisfactorily. We think that either many bulbs failed to flower or the quality was not first class. Had you given us some idea of the manner in which the houses are heated and the average temperature that can be maintained in winter we might have suggested other plants, Tulips for example. Tulips, however, when used for early forcing succeed best when bottom heat is afforded. In no case would Irises prove good substitutes for early Narcissus. We would suggest Hyacinths as a catch crop rather than as a primary one.

DANDELIONS: G. S. You did wrong to allow the plants to seed: they should have been mown down before they reached the seeding stage. Perhaps you have no power to mow over the adjoining fields, in which case we are afraid you can do nothing but exterminate the seedlings as they appear in your garden.

FOLIAGE PLANTS AT AN EXHIBITION: F. L. The Cycads and the Palms are quite distinct, and you need have no fear of entering a Cycas in your exhibit along with a Palm.

HOLLY: T. B. D. & Co. The variety of Holly appears to be similar to that known as nigrescens. We are unable to explain why birds avoid the berries.

LABURNUM ADAMI: J. J. F. There is nothing very unusual in your specimen of this tree bearing three kinds of flowers, although it is true, as you say, that the production of only two kinds is more common. Besides the ordinary flowers of the hybrid L. Adami your tree is also bearing the flowers of the two parents, viz., the common Laburnum (yellow) and Cytisus purpureus (purple). We have noticed a tree in the Royal Botanic Gardens at Kew which for some years past has regularly borne the three sorts of flowers (see note and illustration in *Gardeners' Chronicle*, September 24, 1904, p. 217.) The double-flowered form of *Prunus triloba* does occasionally form young fruits like those you send, but we think you will find that they will soon drop off. We, at any rate, have never known such fruits to attain maturity.

LAWN: F. J. H. A good turf is not to be had in a season or two from the sowing of the seed. It will need careful mowing and rolling, and then in time the fine matting of roots and stem will give the springy sward desired. The application of a mulching of manure in the autumn, and small doses of artificial manures now the grass is growing freely will all tend to stimulate and strengthen the grass.

MANURE FOR CARNATIONS: Dunsland Carnations will succeed in any ordinary soil, from light, sandy loam to a firm clay, but they prefer a moderately rich loamy soil. A compost consisting of well-rotted turf with one-fourth its bulk of decomposed manure, adding $\frac{1}{2}$ bushel of air-slacked lime and $\frac{1}{2}$ bushel of wood ashes to every load of soil, would be very suitable. If the turf used is from a clayey soil, horse droppings are recommended; if from a light, sandy soil, use cow manure. For a medium class of soil use a mixture of horse and cow manure. It is certain that Carnations thrive better in every way in fresh or virgin soil. No potting material can beat fresh loam obtained from the top

spit of a pasture. Out-of-door beds should be prepared in September by trenching the soil to a depth of 18 inches. The soil of the first trench is thrown out, and the bottom or subsoil broken up, then a good layer of cow manure and a sprinkling of superphosphate is put in, the top spit of the next trench being turned on the manure. At the same time keep a sharp look out for wire worm, which is one of the worst enemies of the Carnations. Add another layer of cow manure and superphosphate, and so on as the work progresses. With the fine soil incorporate some lime rubbish and soot. The soil recommended for pot culture is two parts fibrous loam and one part well decomposed leafmould, with a good sprinkling of sand. Apply a good watering after the potting is done and plunge the pots into cocoa fibre or coal ashes in a cold frame, keeping the plants as near to the glass as is practicable. Carnations should not be over-fed with manures, nor grown in an excessively heated atmosphere, for if this is done the constitution of the plants becomes impaired, and disease quickly sets in. All varieties of these plants require a lasting, rather than a forcing manure; that is, one which becomes available slowly but regularly. For pot culture use a little bone meal or horse hoof parings from a shoeing shop if you can get them. If the plants look weakly add $\frac{1}{4}$ oz. of nitrate of potash (saltpetre), to each gallon of water and apply this once a week.

MELON ROOT: T. M. G. The roots you send were badly infested with eel-worm. All the old soil in which they have been grown should be turned out of the house and sterilised by burning. The surroundings in the Melon pit should be thoroughly drenched with a solution composed of carbolic acid in the proportion of one part to twenty of water.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.* **PLANTS:** *Primula*. *Primula cortusoides* ("Sieboldi").—*E. R. F.* 1, *Saxifraga tricuspidata*; 2, *S. species*; 3, *S. hirta*; 4, *S. muscoides*.—*Hugh Aldersey*. 1, *Erodium hymenodes*; 2, *Saxifraga lingulata*; 3, *S. cotyledon* var.; 4, *S. aizoon*; 5, *S. Hostii*; 6, *S. elatior*.—*E.* 4, *Baptisia australis*.—*J. W. H.* 1, *Lonicera*, sp. near *L. Xylosteum*; 2, *L. tatarica* var. *punica*; 3, *Spiraea cantoniensis*; 4, *Lonicera involucrata*; 5, *Viburnum Opulus*; 6, *Magnolia acuminata*.—*E. D. L.* 1, *Fritillaria pyrenaica*; 2, *Clematis montana*; 3, *Cryptomeria japonica*; 4, *Sequoia sempervirens*; 5, *Abies cephalonica*; 6, *Picea excelsa pygmaea*.—*A. B.* 1, *Rosa spinosissima* var. *altaica*; 2, *Acer japonicum* var. *filiifolium*; 3, *Leucothoe Catesbaei*; 4, *Cornus alba*; 5, *Berberis Aquifolium* var. *macrophylla*; 6, *Caragana arborescens*.—*F. J., Hants.* 1, *Fraxinus Ornus*; 2, *Spiraea Van Houttei*; 3, *Kerria japonica* fl. pl.; 4, *Spiraea arguta*; 5, *Picea orientalis*; 6, *Juniperus chinensis*; 7, *Spiraea prunifolia* fl. pl.—*S. P.* 1, *Distylium racemosum* variegatum; 2, *Cotoneaster buxifolia*.—*T. A.* 1, *Aerides odoratum*; 2, *Brassia verrucosa*; 3, *Miltonia Russeliana*; 4, *Odontoglossum blandum*; 5, *Odontoglossum Hunnewellianum*; 6, *Lycaste plana*.—*J. R.* Varieties of Iris germanica. The flowers were quite over when received, and as the class is so numerous it is difficult to name them correctly, even from good blooms.—*N. G., Wales.* 1, *Oncidium prae-textum*; 2, *Oncidium crispum*.—*L. E. W.* *Dendrobium fimbriatum*.—*V. I. M.* 1, *Selaginella laevigata*; 2, *Pteris longifolia*; 3, *Adiantum assimile*.—*H. L. M.* 1, *Pyrus Aria*; 2, *Geranium pratense*; 3, *Geum coccineum*; 4, *Mespilus germanica* (Medlar); 5, *Arbutus Unedo*; 6, Not recognised, send when in flower.—*F. W. J.* 1, *Geum grandiflorum* (very fine form);

2, *Veronica*, send when in flower; 3, *Begonia Arthur Malet*; 4, *Cyperus longis*; 5, *Begonia incarnata*; 6, *Pteris cretica* var. *Wimsettii*.—*T. P.* 1, *Odontoglossum citrosum*; 2, *Brassia verrucosa*.—*W. C. P.* The sorrel is *Rumex Acetosae*; 2, *Lepidium Smithii*.—*H. C.* *Fraxinus Ornus*.—*F. W.* 1, *Agathaea celestis*; 2, *Cedronella triphylla* (Balm of Gilead); 3, probably *Diplotis glutinosus* (no flowers); 4, send in flower; 5, *Eupatorium Weinmannianum*; 6, *Cassia corymbosa*; 7, *Anthericum lineare variegatum*.—*Defiance.* 1, *Potentilla variabilis*; 2, *Asperula stylosa*; 3, *Anchusa italica*; 4, *Eschscholtzia californica*; 5, *Geranium sanguineum*; 6, *Muscari comosum*.—*Fresco.* 1, *Veronica spicata*; 2, *Saxifraga species*; 3, *Helianthemum vulgare*; 4, *Sedum species*; 5, *Thalictrum adiantifolium*; 6, *Saxifraga hypnoides*.—*C. B. L. S.* *Paulownia imperialis*; it is common in gardens in favourable localities, but is not planted so extensively as formerly.

PEACHES DROPPING: R. M. There is no fungus present; the dropping is due to some cultural defect, probably improper watering of the border during the resting season.

PEAR LEAVES INJURED: E. M. C. and G. W. R. The injury has been caused by the Pear-leaf blister-mite. Spray the trees thoroughly with paraffin emulsion prepared by boiling together equal proportions of paraffin and soft soap. This should be thoroughly mixed with 25 times its bulk of water. Spray in the autumn and again in the early spring when the leaf buds are expanding.

PRESERVING SPECIMENS OF CONIFEROUS TREES: H. A. W. There is no satisfactory way of preventing Conifer "needles" from becoming detached. The best plan is to lightly touch the under surface with a film of seccotine, but it is impossible to secure them all. The loose ones may be kept in an envelope attached to the page. The season of the year for gathering the specimens, and the dipping of the specimens into boiling water, have been the subjects of experiment, but with no success. We have sometimes stitched the needles down to the paper in their places with dark cotton, but this was a tedious process, and, after all, they soon became detached from the stem.

RAINFALL: A. J. You will receive this information from the Meteorological Office, 63, Victoria Street, London, S.W. The records of the rainfall at Chiswick for a period of 60 years is published in the Royal Horticultural Society's *Journal*.

ROSE RUST: B. M. & Sons. The Orange-coloured appearance of the shoots is due to the presence of a fungus, *Phragmidium subcorticatum*. The appearance of the disease in spring depends on the presence of resting spores from the previous autumn. It is, therefore, necessary to collect and burn all fallen leaves in the autumn. Spraying with diluted Bordeaux mixture or ammoniated carbonate of copper solution will check the spread of the disease. The fungus also grows on wild Roses, and these may become a source of infection unless proper precautions are taken.

STRAWBERRY FLAVOURING: F. R. A. We have no knowledge of any special variety used for flavouring ice-cream.

TULIPS DISEASED: Miss G. and A. R. The mould on the leaves—*Botrytis cinerea*—is a dangerous pest, and has been favoured by the wet weather. The soil in which the bulbs were planted should be given a dressing of gas lime, otherwise the infection will spread. Seed produced by plants of the diseased Forget-me-Nots should not be kept.

WILLOW DISEASED: Windermere. The injury is due to a well-known fungus—*Phylospora salicis*. The only remedy is to remove and burn as much as possible of the injured parts to prevent further infection.

COMMUNICATIONS RECEIVED.—Aldersey (Thanks for 2s. for R.G.O.F.).—F. Denis (France).—C. B. M. (a note upon the book mentioned was published in our last issue).—Sutton and Sons—A. W.—E. H. Krelage—Mrs. Richmond—J. B.—H. J. E.—H. E. E.—Rev. W. R. W.—J. D. G.—R. H. C.—S. C.—C. Sprenger—True Blue—A. J. H.—F. Z.—De B. Crawshaw—W. A. C.—F. M.—Dublin—H. M. V.—H. J. C.—H. L. B.—H. W. W.—T. A. H.—Rivers—W. H. D.—G. S. S.—W. M.—W. H. C.—J. G. W.—G. W.—C. P.—E. T. C.—W. L.—G. W.—F. B.—Rubrum—K. S. L.—F. G. B.—W. D.—S. H. H. J.—G. W.—J. W.—Anxious—J. G. B.—E. R.—F. C.—W. T.—R. S.—W. T.—G. M.—G. W. R.—F. M. G.—J. A.—E. P. D.—E. R.—G. & Co.



THE Gardeners' Chronicle

No. 1,069.—SATURDAY, June 22, 1907.

CONTENTS.

Alpine garden—	Potato "seed" tubers,	
Campanula garganica	immature ...	412
hirsuta alba ...	Pruning, summer, re-	
Apple Cox's Orange	port on the effects	
Pippin ...	of ...	400, 406
Benevolent Institution,	Pruning, summer, in	
Gardeners' Royal ...	the Transvaal ...	407
Berberis buxifolia ...	Rhododendron "Duke	
Books, notices of—	of Cornwall" ...	407
Alphabet of Garden-	Rhododendrons at the	
ing ...	Royal Botanic Gar-	
Cereus grandiflorus ...	dens ...	407
Clematis montana ...	Roses, early flowering...	412
Colonial notes ...	Societies—	
Drives and paths, the	Birmingham Botanical	
construction of ...	and Horticultural ...	418
Fir Grange, Weybridge	Linnean ...	418
Forestry—	Manchester and N. of	
Our future timber sup-	England Orchid ...	418
plies ...	Royal Horticultural ...	407
Gladiolus "The Bride"	(Scientific Committee)	412
Gunneras, hardy ...	Yorkshire Gala ...	418
Hardy flower border—	Trees and shrubs—	
Pentstemon glaber	Laburnums ...	404
and its varieties ...	Trillium grandiflorum	412
Eremurus Tubergenii	Week's work, the—	
India, a note from ...	Flower garden, the ...	404
Masters, botanical works	Fruits under glass ...	404
of the late Dr. ...	Hardy fruit garden ...	405
proposed memorial to	Kitchen garden, the ...	404
Odontoglossum crispum	Orchid houses, the ...	405
heatonense ...	Parks and gardens ...	405
Orchid notes and glean-	Plants under glass ...	405
ings ...	Yew tree, transplanting	
Polygonum Balduanum	an old ...	408

ILLUSTRATIONS.

Gladiolus "The Bride"	...	398
Polygonum Balduanum	...	399
Rhododendron "Duke of Cornwall" (Supplementary	...	
Illustration)	...	
Odontoglossum crispum heatonense	...	409
Fir Grange, Weybridge	...	411
Trillium grandiflorum	...	412
Rose, a proliforous	...	416

THE CONSTRUCTION OF DRIVES AND PATHS.

THE object of a drive or path is to provide easy access to the main features of interest in its locality, and in such a manner as to enable them to be viewed to the best advantage.

Before deciding upon the course of a drive, it is well to go very thoroughly over the ground, not only with a view of mapping out the most attractive direction, but also the most convenient gradient, which should be as uniform as possible, and in no case exceed a fall of one foot in eight. Straight lines should, generally speaking, be avoided, and in their place a succession of long, sweeping curves should be made, which will present, as one proceeds, an ever-varying change of scenery. It may lead, we will suppose, from the vicinity of a dwelling-house through the open park or garden into an adjoining wood, emerging from under the shade of lofty forest trees to an open glade, upon which Primroses, Bluebells, and other native wild flowers vie with each other for supremacy; next, turning a corner and following, through a plantation of Willows or Alders, the course of a babbling brook, afterwards ascending

through a cutting of heather-clad rocks, and so on.

Should the required drive lead to the top of a steep hill, it will sometimes be advisable to assume a zig-zag course, and consequently turn rather abruptly at the corners; ample provision must be made for turning these corners safely, and it is well to err on the safe side as regards allowing sufficient space.

The course to be taken should be accurately mapped out by means of wooden pegs driven firmly into the ground at convenient intervals. The work of construction will have to be carried out according to circumstances and the kind of drive or path desired. The heavier the traffic is expected to be, the more solid must the drive be constructed.

In the formation of either drives or walks, it is usually best to make up the sides first, so as to obtain a good line, and if the gradient can be so arranged that the soil from the cuttings can be made sufficient for all filling that may be required in other parts, so much the better.

One of the most delightful, and at the same time most natural, means of access is the grass-covered path, which enables one to get within easy reach of subjects of individual interest, such as a group of flowering shrubs, or a particular tree, or some choice specimen on the rock-garden; also for woodland purposes a grass vista is often very desirable. Provided the ground is fairly even, and the woods not too dense to admit a certain amount of sunshine, a grass-covered walk can be formed with very little trouble, either by levelling the surface of the existing grass and adding a little additional turf where necessary, or by sowing seeds of a suitable mixture of woodland grasses along the track after it has been brought to the required level. One of the greatest attractions of a grass-covered path is, as before mentioned, its natural appearance, and the ease with which its surroundings can be beautified by means of wild flowers, naturalised bulbs, &c.

Such a path may vary in width from 5 to 20 feet, according to the space available; 20 feet wide it might also be used for occasional light traffic and sporting purposes. The ground should be well drained, and if the soil is very retentive, additional drainage should be provided by forming a small ditch along each side of the walk.

If a drive has to be made which will form an approach to the dwelling-house, it must be so constructed as to effectually withstand all kinds of traffic without injury, and allowance must be made in excavating, for the spreading of 8 to 12 inches of hard, porous material over the surface of the drive.

Upon the completion of the necessary excavations, provision must be made for suitable drainage. In some cases it will suffice to turn the surface water on to the adjoining land by means of outlet channels. This, however, is not always possible or desirable, in which case a drain of 3 or 4-inch pipes should be run along the course of the drive, either in the centre, which is preferable, or at the side. The pipes should be laid at about 3 feet deep, and be filled over with rubble, in order to conduct the water. So-called gully-holes, consisting of square holes built in brick, and fitted at the top with an iron grid, should be constructed at intervals along the side of the

drive for the purpose of conducting the surface water into the drain. On perfectly level ground or steep places these gully holes should not be more than 25 yards apart, but on an easy gradient a distance of 50 yards apart will suffice.

Outlet pipes from gully holes should be fixed in such a manner as to allow a few inches at the bottom for the accumulation of refuse, and thereby allow of its being cleared out occasionally. If it is desired that the approach should admit of two carriages passing each other conveniently, it should not be less than 15 feet in width. The stone or other material used for strengthening the road should be laid on in such a manner as to be 2 or 3 inches higher in the middle than at the sides.

The ordinary drive, by which is understood a drive for light traffic only, especially if it is to traverse uneven ground in hilly districts, should also be provided with a suitable depth of strengthening material, but 6 to 9 inches will be sufficient. The drainage in this case can either be conducted on to the adjoining land or provided for by means of gullies, as circumstances permit. The width of an ordinary drive should not be less than 8 feet or more than 14 feet. If the drive is to be carried along the side of a steep slope, I have found it a good plan to bank up the soil obtained during the excavation on to the lower side, and to secure it by means of a wattled fence buried in such a manner as to be hidden from view as far as possible; these fences, if well constructed, will last a number of years, by the end of which time the banked-up soil will have become sufficiently self-supporting. A drive of this kind is very useful for the purpose of making a circular tour round the premises, and should be provided with one or more main branches, in order to secure a near "cut" from one side of the grounds to the other. The walk or pathway should serve the purpose of connecting up different parts of the drive or drives, and may vary in width from 4 to 10 feet, and may be surfaced with grass, moss, gravel, or some other porous material.

The advantages of a grass covered path have already been referred to, but where the soil is poor and the ground uneven, a gravel path is preferable, and has the advantage, if well made, of being dry to walk upon all the year round. A few inches of rough, moderately-solid material may be used with advantages as a foundation for the gravel to work into. By means of a path, access should be possible to such features of interest as cannot easily be reached, on account of the gradient or other reasons, by the drive, and as such a path can easily be furnished with steps, the question of gradient need not be taken into consideration.

Having completed the necessary preparatory work according to the requirements, there arises the question of the most suitable material for strengthening purposes. The best material to be used will depend on circumstances, and a good selection may be made from among the following:—Basalt stone, granite, limestone, shingle, cinders, bricks, builders' refuse, and clay. Except where the proposed drive is to stand the wear and tear of heavy and constant traffic, it is generally best to make use of such of the materials mentioned as are most easily obtainable in the district. It often happens, especially in hilly districts, that suitable stone can be found within easy carting distance upon the estate, or even be procured from the excavated material of the drive itself. P. M.

(To be continued.)

BOTANICAL WORKS OF THE
LATE DR. MASTERS.

(Continued from page 378.)

It has been mentioned that Dr. Masters had many special studies, among which vegetable teratology held the foremost place for many years. In Taxonomy he was an acknowledged authority on the orders Coniferæ, Restiaceæ, Aristolochiaceæ, and Passifloraceæ. Excluding the contributions on the Coniferæ which appeared in the *Gardeners' Chronicle*, his writings on this order are more numerous and more comprehensive than on any other, and appeal equally to the botanist and horticulturist. The principal papers are in the *Journal of the Linnean Society*, beginning with: "Notes on the Relations between the Morphology and Physiology in the Leaves of Certain Conifers," 1880, vol. xvii., pp. 547-552, and followed by II., "The Conifers of Japan," 1881, vol. xviii., pp. 473-524, tt. 19 and 20, and many figures in the text. III., "Contributions to the History of Certain Species of Conifers," 1886, vol. xxii., pp. 169-212, tt. 2-10, and numerous figures in the text. IV., "Review of some Points in the Comparative Morphology, Anatomy, and Life-History of the Coniferæ," 1890, vol. xxvii., pp. 226-332, with 29 figures in the text. V., "Notes on the Genera of Taxaceæ and Coniferæ," 1893, vol. xxx., pp. 1-42. VI., "A General View of the Genus *Cupressus*," 1896, vol. xxxi., pp. 312-363, with numerous figures in the text. VII., "Coniferæ of China," in Forbes' and Hemsley's "Enumeration of the Plants of China," 1902, vol. xxvi., pp. 540-559. VIII., "A General View of the Genus *Pinus*," 1904, vol. xxxv., pp. 560-659, tt. 20-23. IX., "On the Conifers of China," 1906, vol. xxxvii., pp. 410-424. Masters also took the leading part at the Conifer Conference of the Royal Horticultural Society in 1892, and delivered the opening address, the theme of which is, "Some Features of Interest in the Order of Conifers." He also contributed a "List of Conifers and Taxads in Cultivation in the Open Air in Great Britain and Ireland." This is really much more than a list, containing, as it does, historical, bibliographical, and descriptive information, and a copious synonymy of the genera and species. It appeared in the Society's *Journal*, 1892, N.S., vol. xiv., pp. 179-256, and it was also issued separately. There are some smaller contributions on Conifers, such as: "De Coniferis quibusdam sinicis vel japonicis Adnotationes quaedam," in *Bulletin de l'Herbier Boissier*, 1898, vol. vi., pp. 269-274. II., "Taxodium and Glyptostrobus," in *Journal of Botany*, 1900, vol. xxxviii., pp. 37-40. III., "Chinese Conifers Collected by E. H. Wilson," in *Journal of Botany*, 1903, vol. xli., pp. 267-270. Finally, the first paper on the list for reading at the meeting of the Linnean Society on Thursday last, June 20, was one by the late Dr. Masters, "On the Distribution of Conifers in China and Neighbouring Countries."

The foregoing list does not pretend to be a complete bibliography of Dr. Masters' contributions to the literature of the Coniferæ; but it includes all the papers to which I have references at hand as likely to be useful. One exception deserves to be made with regard to the *Gardeners' Chronicle*, namely, "Description of West American Conifers," 1880, vol. xiii., p. 648; 1880, vol. xiv., p. 720; 1881, vol. xv., pp. 179, 236, 660; 1883, vol. xix., p. 45. I had almost forgotten the fact that Masters was a contributor to the great *Pinctum Britannicum*.

Passing to the elegant and curiously-constructed Passifloraceæ, the most important work is the monograph of the South American species in the *Flora Brasiliensis*, 1872, vol. xiii., pp. 529-628, tt. 106-128. In this monograph, *Tacsonia* is treated as a genus, and 25 species are

described; all Andine, or, at least, western; none Brazilian. Of *Passiflora* itself, 175 species are described, nearly half of which are Brazilian. Since that date many new species have been discovered in South America, most of which were described by Masters himself. There is also the new genus, *Mitostemma*, Masters, of two species; one from British Guiana, the other from Brazil.

No one knew better than Masters that there were connecting links between typical *Passiflora* and typical *Tacsonia*, but he preferred retaining them as separate genera to the end. On this point he makes the following observation under *Tacsonia*: "Genus sat naturale cum *Passiflora* ab auctoribus pluribus conjunctum, differt ab illa florum forma, coronæ dispositione nec non distributione geographica specierum. Species intermediæ, quæ a Candolle in *Tac-*



FIG. 165.—CLUMP OF GLADIOLUS "THE BRIDE":
FLOWERS WHITE.

sonia sectiones *Distephana* et *Psilanthus* disponuntur, mihi rectius ad *Passifloras* veras pertinere videntur."

Since the foregoing was written, further connecting links have been discovered, yet it seems more convenient for practical purposes to keep up both. *Passiflora fuchsiiflora* (Hooker's *Icones Plantarum*, t. 2553) again, is a *Dilkea* in structure, except that it has only three style-arms instead of four.

In regard to the distribution of *Passiflora*, Masters remarks that no indigenous species had been found in Africa, and recent explorations in all directions have not yielded one, though several very curious new genera of the order Passifloraceæ have been discovered in that country. Only two species were known to inhabit India, and the number has not been increased, but, including unpublished ones, six new species have been found in Western China.

Unfortunately, the colossal *Flora Brasiliensis* is accessible to comparatively few persons, but Masters published the results of his studies and researches in various places. His "Contributions to the Natural History of the Passifloraceæ" (*Transactions of the Linnean Society*, 1871, vol. xxvii., pp. 593-646, tt. 64 and 65) are very comprehensive and highly interesting, treating, among other things, of the organography, development of the various organs, teratology, anatomy, fertilisation, and germination of the order. The beautiful and often complex coronal structures are described in detail. Under the head of corona is included all that series of rings, scales, or threads intervening between the petals and the stamens. From their almost universal presence in the species of the order, their variety of form, and the parts they play in the physiological functions of the flower, considerable interest attaches to them. The corona is met with in its greatest complexity in some species of *Passiflora*, and in its greatest simplicity in the genera *Malesherbia* and *Gynopleura*. In the latter it exists only as a thickened rim or a series of tubercles projecting from the margin of the floral-tube, whereas in some species of *Passiflora*, such as *P. quadrangularis*, it is exceedingly complex. Masters describes the different series from above downwards. I., perfect rays, consisting of two or three rows, of distinct threads. II., imperfect rays, consisting of a variable number of short and, as it were, imperfect or rudimentary threads. III., a membranous ring, the "false operculum" found in *P. quadrangularis* and in one or two other species only. IV., a membranous sheath called the "operculum," which shuts off the nectary proper from the upper part of the flower-tube. Below this there is, in some species, a thickened rim projecting from the side of the nectary and partially dividing it into two compartments, an upper and a lower. Lastly, there is sometimes a shallow membrane or thickened cup at the base of the gynophore.

In this connection we might extract from the paragraphs on fertilisation did space permit; but, passing over many minor papers, chiefly descriptions of new species, we come to the useful "Classified Synonymic List of all the Species of Passifloraceæ Cultivated in European gardens, with references to the works in which they are figured." This appeared in the *Journal of the Royal Horticultural Society*, 1874, vol. iv., pp. 125-148, tt. 6-8, and a new edition brought up to date is very desirable.

(To be continued.)

GLADIOLUS "THE BRIDE."

THE pure white variety of *Gladiolus Colvillei* is by far the most hardy of all the early Gladioli, and may be grown in a light, well-drained soil without difficulty. A spot which is exposed to full sunshine on a south terrace suits this plant perfectly, and a few bulbs, planted in such a position in August, will quickly increase, forming a handsome group after the lapse of a year or two. The flowers open in June. Bulbs grown in this way for three years should then be taken up after the foliage has died away in summer. The finest of the bulbs can be selected for forcing if desired, replanting the others in a fresh position without delay. They succeed best when not removed from the soil for any length of time, as they naturally start into growth early in the autumn. A mulch of well-decayed manure should be laid over them in March every year, and in cold districts it may be desirable to cover them with a conical pile of fine coal-ashes during the winter; but they do not appear to suffer from frost when cultivated in a well-drained position. I. Z. R.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM NOBILE
(PESCATOREI).

ODONTOGLOSSUM nobile, although it is not equal to the varieties of *O. crispum*, is very beautiful when properly grown, and might well

few purple spots have developed on the sepals and petals, one having them very quaintly arranged along the mid-ribs of the segments towards the tips. It is said that in some gardens *O. nobile* is a shy flowerer, but here, although the plants are rather small, most of them are in bloom and are very effectively arranged with the

flowers represent one, is sent by F. Menteith Ogilvie, Esq., The Shrubbery, Oxford (gr. Mr. Balmforth). There are five segments of the nature of sepals, and one which is part sepal and part petal, the other three petals being perfect. There are two labellums diverging right and left, and two columns joined from the ovary to near the apex. All the parts are regularly displayed, and the colour is primrose-yellow spotted with reddish-brown, the sepals having the larger spots and the petals the smaller, together with a thin reddish line at the base, and which can be traced in the part of a petal which is joined to a sepal.

EPIDENDRUM (NANODES) MEDUSÆ.

A VERY fine specimen of this extraordinary species is in bloom in the gardens of Malcolm S. Cooke, Esq., Tankerville, Kingston Hill (gr. Mr. Buckle), where it is considered one of the most attractive of cool house Orchids. The long fleshy stems, furnished with two rows of greyish-green leaves, are pendulous, and bear at their extremities one or two flowers of thick substance, the showy portion of which is the orbicular, deeply-fringed, claret-purple labellum, which measures from 2 to 3 inches across. With its drooping growths furnished with a good number of these very remarkable flowers, the specimen is a fine object. It was described as *Nanodes Medusæ* by Reichenbach in the *Gardeners' Chronicle*, 1887, p. 432, and was figured in the *Botanical Magazine*, t. 5723.

EPIDENDRUM (NANODES)
MATTHEWSII

is also in cultivation. It is of dwarf tufted habit and bears pretty ruby-purple tinted flowers. Both species remain for a long time in flower. The *Nanodes* should be grown in baskets or Orchid pans, and suspended in the *Odontoglossum* house or the coolest part of the *Cattleya* house.

DENDROBIUM THYRSIFLORUM
GALLICEANUM.

A PHOTOGRAPH of an ally of this singular variety, which was figured in *Lindenia*, VI., t. 241, is sent by Mr. R. Robinson, Roath Park, Cardiff, who also sent an inflorescence to the Temple Show, but which arrived in a withered condition. The photograph shows a fine plant with three spikes, and the flowers have the sepals and petals as in typical *D. thyrsoflorum*, but the labellums by an abnormal development which is in this plant, as in the original *D. t. Galliceanum*, a fixed character, are narrowed, elongated, not cupped, the colour being whitish tinged with yellow. It is a very singular and pretty variety.

POLYGONUM BALDSCHU-
ANICUM.

THIS hardy, perennial-climbing plant, introduced from Bokhara, is now better known in gardens than in 1897, when we reproduced a photograph kindly sent us by M. V. Lemoine, of Nancy. At the same time, from numerous enquiries we receive respecting this species, it is evident that there are many gardeners who have not cultivated it, and therefore the illustration at fig. 166 may serve to show what a charming species it is for training over tree stumps, pillars, fences, or pergolas. The plants are now approaching the flowering period, and they will continue in bloom until the end of summer. *Polygonum Baldschuanicum*, like most of the other species, succeeds in ordinary garden soil, but this should be well enriched with manure, in order that the plants may be able to make long and stout growths, capable of flowering profusely as shown in the illustration. The flowers have been described as pink, and white on various occasions, owing partly to slight variability in the plants, and to the different conditions in which they are cultivated. If the plants are introduced to artificial heat it has the effect of destroying the pink colour.



[Photo by F. Mason Good.]

FIG. 166.—POLYGONUM BALDSCHUANICUM: HARDY PERENNIAL CLIMBER; FLOWERS PINK.

claim the second place as an attractive, white-flowered species. A very nice batch of plants is in flower in the Orchid nursery of Mr. H. A. Tracy, Amyand Park Road, Twickenham, showing great variety in the flowers. One has pure white flowers with an orange crest to the lip; some have unusually large labellums decorated with dark violet blotches; and in several a

larger-flowered *O. crispum*s and other species, together with several very handsome hybrid *Odontoglossum*s.

ODONTOGLOSSUM ANDERSONIANUM.

AN extremely beautiful example of abnormal characters in the flowers of *Odontoglossum Andersonianum*, in which the parts of two

REPORT ON THE RESULTS OBTAINED FROM THE SUMMER PRUNING OF FRUIT TREES.

[FROM OUR OWN CORRESPONDENTS.]

See also leading article on page 404.

DATE CONSIDERED BEST TO COMMENCE SUMMER PRUNING OF APPLE, PEAR, AND PLUM TREES, &c.	GENERAL RESULTS FROM SUMMER PRUNING.	NATURE OF SOIL.	NAME AND ADDRESS.
SCOTLAND:			
0, Scotland, N.			
Apples and Pears, July 15	Good	Heavy loam on stiff subsoil of clay	T. MacDonald, Balfour Castle Gardens.
Beginning of July	Indifferent	Heavy loam on clay	J. McIvor, Skibo Castle Gardens, Dornoch.
1, Scotland, E.			
Plums, first of July; Pears, middle of July; Apples, end of July	Indifferent	Medium, shallow loam on hard pan subsoil	J. Grant, Rothlenorman Gardens.
End of June	Fairly satisfactory	Heavy soil on clay	J. Brown, Delgaty Castle Gardens.
Second or third week in August		Deep black soil with many stones on a subsoil of sand and stones	G. Edwards, Ballindalloch Castle Gardens.
If growth is vigorous, in June and July; if moderate, in August	Good	Good loam on clay	A. Blackwood, Academy Gardens, Dollar.
End of July		Red loam on sand	W. Henderson, Balbirnie Gardens.
Middle of August	Beneficial; Apples are not treated. Valuable only in the case of wall trees and espaliers. Increased fruitfulness of trees	Light soil deficient in loam; subsoil gravel	P. McRobbie, Tarvit Gardens.
Pears, Plums and other stone fruits, June 26 to July 15		Light loam on sand	R. P. Brotherston, Tynninghame Gardens.
Third week in July	Good	Along coast, sandy on gravel; inland, heavy loam on clay	C. Simpson, Wemyss Castle Gardens.
Middle of July, commencing with Cherries and Plums		Sandy loam on almost pure sand	T. Wilson, Glamis Castle Gardens.
Apples, Pears, Apricots, and Sweet Cherries on walls as soon as the fruits are set, and again later. Standard Peaches, Nectarines, and Morello Cherries, August 1 to 10.	Most satisfactory.	Light soil on gravel subsoil	W. Alison, Seaview Gardens.
Middle of July to Middle of August, according to season		Sandy loam on gravel	W. Galloway, Gosford Gardens.
First to third week in July	Good	Stiff sandy clay on rock	J. M. Brown, Blackhall Castle Gardens.
Apple and Pears, middle of July; Plums, Apricots, &c., at the end of July	Good	Light sand on gravel	W. Knight, Fasque Gardens.
Plums, the middle of June; Apples and Pears, July 1 to 15	Good	Red loam on red clay	W. Pirie, Dalhousie Castle Gardens.
The first week in August	Good	Heavy loam on clay	J. Whytock, Dalkeith Gardens.
Stone fruits, middle of July; Apples and Pears, the first week in August	Fairly good	Light loam on gravel	W. McDonald, Cardrona Gardens.
About the last week of June			J. Farquharson, Kinfauns Castle Gardens.
			J. Robb, Catherinebank.
6, Scotland, W.			
Pears and Plums, early in July; Apples, about mid-summer; Sweet Cherries, when growths have made about five inter-nodes.	Good	Sandy loam on pure sand; part of orchard sandy peat	D. S. Melville, Poltalloch Gardens.
Stone fruits, third week in July; Apples and Pears, first week in August	Good	Solid rock 6 to 18 inches below the surface	H. Scott, Torloisk Gardens, Aros.
About July 15	Indifferent	Heavy loam on clay	W. Priest, Eglington Gardens, Kilwinning.
Middle to end of July	Good	Good loam on gravel	D. Buchanan, Bargany Gardens.
Last week in June or first in July		Light on sandy subsoil	T. Gordon, Ewenfield Gardens.
Apples and Pears, beginning of July; Plums and other stone fruits, middle of June.	Good	Shallow and cold on rocky base	D. Stewart, Knockderry Castle Gardens.
Last week in June	Induces the formation of flower buds. If performed earlier the results are bad	Clay-loam on heavy clay	J. Urquhart, Hoddon Castle Gardens.
Beginning of August		Loam, on sand and gravel	J. MacDonald, Dryfeholm Gardens, Lockerbie.
Apples and Pears, end of July; stone fruits, second week in July	Good	Shallow, on a gravel bottom	N. Macfadyen, Glenlee Park Gardens, New Galloway.
Last week in July and the first in August	Good	Light, sandy loam on clay	A. Marshall, Ballikinrain Castle Gardens.
Middle of August	Indifferent	Stiff loam on clay	J. Miller, Castlehill Gardens.
In June	Good	Sandy on a gravel subsoil	T. Lunt, Ardgowan Gardens.
First week in August	Good	Loam on gravel	J. Bryden, Dunragit Gardens.
Last ten days of July; cordon trees earlier	Satisfactory	Good loam on gravel and sand	J. Day, Galloway House Gardens, Gartcotton.
ENGLAND:			
2, England, N.E.			
DURHAM.			
From July 12 to 20	Indifferent	Limestone	R. Draper, Seaham Hall Gardens.
In July	Good (in the case of wall trees)	Strong loam on clay	J. Noble, Woodburn Gardens.
	Good	Black, heavy soil on cold, heavy clay	J. Machar, Smelt House Gardens.
YORKSHIRE.			
Apples and Pears, middle of July	Indifferent; crops always less	Moderately good loam on Yorkshire grit	J. Simpson, Studfield.
Plums, first week in July	Good	Strong loam over clay resting on chalk	John Allsop, Dalton Hall Gardens.
Strong-growing Apples and Pears, second week in July; weaker kinds, ten days earlier; Apricots and Plums on walls, first week in July.	Fairly good	Stiff loam on magnesium limestone	Henry J. Clayton.
Middle of July	Good (in the case of wall trees)	Light loam on sand or stones	John McClelland, Ribston Hall Gardens.
3, England, E.			
CAMBRIDGESHIRE.			
Apples and Pears, August 1; Plums and other stone fruits, July 18 ..	Good	Light and open on gravel and chalk	R. Alderman, Babraham Hall Gardens.
ESSEX.			
Commence with Pears, middle of June, following with Plums and Apples	Good	Stiff loam	Arthur Bullock, Copped Hall Gardens, Epping.
Middle of July	Good	Loam on clay	Henry Lister, Easton Lodge Gardens, Dunmow.
Middle of July	Aids the formation and the plumping of fruit buds, and assists in securing symmetrical trees	Loam on clay	H. W. Ward, Lime House, Bayleigh.
Second week in July		Light, sandy soil on gravel	W. R. Johnson, Stanway Hall Gardens.
LINCOLNSHIRE.			
Stone fruits, last week in June; Pears, first week in July; Apples, second week.	Good	Brown loam, on blue clay or ironstone	H. Vinden, Harlaxton Manor Gardens.
End of June to middle of July	Good, if growths are not shortened too severely	Strong loam on clay	F. J. Fleming, Weelsby Old Hall.
NORFOLK.			
Pears, second week in July; Apples, third week	Indifferent	Mostly sandy, on chalk or gravel	E. C. Parslow, Shadwell Court Gardens.
First week in July	Good	Mixed soil on gravel	J. W. Bradhook, Ketteringham Park Gardens.
August	Indifferent; no effect on cropping	Light	W. N. Thurston, Wotton Park Gardens.
SUFFOLK.			
Second week in July, commencing with Cherries, and following with Plums, Pears, and Apples; Apples, end of July or beginning of August.	Good, if not performed too early		Thos. Simpson, Henham Hall Gardens.
Apples, last week in July; Pears and Plums, first week in August	Good	Mixed soil on sand	A. Hickford, Darsham House Gardens.

RESULTS OBTAINED FROM THE SUMMER PRUNING OF FRUIT TREES—(continued).

DATE CONSIDERED BEST TO COMMENCE SUMMER PRUNING OF APPLE, PEAR, AND PLUM TREES, &c.	GENERAL RESULTS FROM SUMMER PRUNING.	NATURE OF SOIL.	NAME AND ADDRESS.
4, Midland Counties.			
BEDFORDSHIRE.			
Apples and Pears, second week in July; stone fruits, June 19	Indifferent	Gaulty clay	H. Nimmo, Cranfield Court Gardens.
Apples, Pears, Plums, and Cherries, from the latter part of June to end of July.	Indifferent	Very strong loam on clay	T. W. Birkinshaw, Hatley Park Gardens.
Never before the fruits are gathered, unless the trees have failed to bear.	Indifferent, owing to poor quality of soil	Sand, loam and gravel	H. W. Nutt, Flitwick Gardens.
Pruning is regulated by the season	Good	Sandy loam, chalk and clay	George Mackinlay, Wrest Park Gardens.
End of June	Very indifferent	Sand, on stiff, blue clay	Wm. F. Palmer, Froxfield Gardens.
Pears, Plums, and other stone fruits, second week in June; Apples, third week in June.	Good	Sandy loam on sand	O. J. Ellett, Chicksands Priory Gardens.
BUCKINGHAMSHIRE.			
Early in July	Good	Gravelly	John Fleming, Wexham Park Gardens.
Apples and Pears, second week in July; Plums, end of July	Good, if root-pruning is practised in addition	Heavy loam on brick-earth	Chas. Page, Dropmore Gardens.
End of August and early September	Fairly good	Heavy loam on clay	W. Hedley Warren, Aston Clinton Gardens.
July 20	Good	Heavy clay	James MacGregor, Mentmore Gardens.
CHESHIRE.			
Middle of July	Very good	Light, sandy loam on a clayey bottom	Geo. W. Lilley, Moreton Hall Gardens.
Apples and Pears, last week in July; Plums, middle of July	Good	Light and open on a boggy subsoil	Peter Wilkinson, Walton Lea Gardens.
DERBYSHIRE.			
Plums, early in July; Apples and Pears, middle of July	Indifferent, but conduces to neatness, and, in Plums, destroys many aphides	Heavy on clay	J. O. Tallack, Shipley Hall Gardens.
June 20	Good	Friable loam on clay	T. Keetley, Darley Abbey Gardens.
Apples, not earlier than July 10; Pears and Plums, about July 20	Very indifferent	Close, retentive, and cold on clay	F. G. Mills, Glossop Hall Gardens.
Apples, July 10; Pears and Plums, July 20	Very indifferent	Retentive and cold, with an absence of lime; subsoil clay	F. G. Mills, Lonside Home Farm, Glossop.
Older Pear trees on walls, end of June; Apricots and pyramid Apple trees, in July.	Good	Medium to heavy texture; subsoil gravel	J. Tully, Osmaston Manor Gardens.
HERTFORDSHIRE.			
Apples and Plums, end of July; Pears, early in August; Cherries, when fruits commence to colour.	Trees flower freely	Strong loam on layer of clay, resting on sand	O. B. Fielder, North Mymms Park.
Pears, July 14; continuing with Apples, Plums, &c.	Satisfactory	Good loam on gravel	C. E. Martin, The Hoo Gardens.
Apples, not summer pruned; Pears, first week in July	Good	Light loam on gravel	H. Prime, Hatfield House Gardens.
First week in July	Satisfactory	Strong clay	F. W. Gooch, Edge Grove Gardens.
Apples and Pears, July 20; Stone fruits, July 15	Satisfactory	Loam with gravel and chalk as subsoils	E. Beckett, Aldenham House Gardens.
Middle to end of August	Good	Gravelly	W. Whitelaw, Batchwood Gardens.
Second week in July	Good	Loam on subsoil of red clay	H. Parr, Trent Park Gardens.
LEICESTERSHIRE.			
Peach trees, middle to end of June; following with Plums, Pears, and Apples in order named.	Good	Stiff clay on the lias formation	D. Roberts, Prestwold Hall Gardens.
Pears and Plums, middle of June, taking the younger trees first; Apples, Cherries, and Apricots, middle of July; Peaches and Nectarines throughout the growing season.	Good		W. H. Divers, Belvoir Castle Gardens.
NORTHAMPTONSHIRE.			
End of July	Indifferent	Heavy loam on clay	R. Johnston, Wakefield Lodge Gardens.
From July 20 to middle of August	Good	Ironstone	H. Turner, Finchade Abbey Gardens.
Last week in July	Good	Gravelly loam on gravel	A. Parr, Holme Pierrepont Hall Gardens.
NOTTINGHAMSHIRE.			
Apples, July 25; Pears and Plums, July 30; other stone fruits, August 5.	Good	Clay	James Gibson, Welbeck Abbey Gardens.
Apples, Pears, and Plums, from middle to the end of July.	Good	Light loam on gravel and chalk	J. A. Hall, Shiplake Court Gardens.
After the middle of July	Good	Very strong loam, on gravel or clay	A. J. Long, Wyfold Court Gardens, Reading.
OXFORDSHIRE.			
Completed at end of July	Good	Heavy loam on clay	J. Broadfoot, Shotover Gardens, Wheatley.
First week in July	Good on dwarf trees	Sandy loam on gravelly subsoil	A. S. Kemp, Broadway, Shifnal.
SHROPSHIRE.			
About second week in July	Fairly good	Strong clay on limestone formation	J. Loudon, The Quints, Chirk.
End of June	Good	Light, on gravelly subsoil	C. Robinson, Pitchford Hall Gardens.
Beginning of July	Usually good	Heavy, on a marly subsoil	T. Bannerman, Blithfield Gardens.
STAFFORDSHIRE.			
Finished in July	Good	Stiff loam on water clay	G. Woodgate, Rolleston Hall Gardens.
WARWICKSHIRE.			
Summer pruning not much practised; unnecessary	Admits air and light, otherwise of little use	Light loam resting on red clay	W. Miller, Berkswell.
Apples, July; Pears, September; Plums and other stone fruits, from July to August.		Heavy clay to gravel	T. Masters, Estate Office, Shuckburgh.
5, Southern Counties.			
BERKSHIRE.			
Pears, July; Plums and other stone fruits, end of June; Apples, early in August.	Good	Stony on gravel	G. Cooper, Oakley Court Gardens.
Wall trees, middle of June; bush trees, middle of July	Good	Light, resting on gravel	J. Howard, Benham Park Gardens.
Middle of July	Good	Chalky loam on rock subsoil	W. Fyfe, Lockinge Gardens.
No summer pruning of standard trees of Apple and Pear; wall trees pruned middle of July.	Satisfactory	Gravel on clay	J. Coombes, Englefield Gardens.
Cherries and Plums, at beginning of July; Pears and Apples afterwards	Good	Retentive, on stiff clay	W. Pope, Highclere Gardens.
DORSETSHIRE.			
Early in August, excluding weak-growing varieties	Good	Sandy nature on chalk	H. Birkinshaw, Chedington Court Gardens.
Stone fruits, beginning of July; Apples and Pears next, excluding bush and pyramid-trained trees.	Advantageous	Heavy loam on rocky subsoil	T. Turton, Castle Gardens.
June 24 to middle of July; Apples, Pears, and Plums in rotation	Causes trees to flower freely; better than winter pruning for Plums and Apricots	Light texture on chalk	T. Denny, Down House Gardens.
Apricots and Cherries, end of June, continuing with Plums, Pears, and Apples.	One operation answers well	Light loam and vegetable mould on loose, sandy gravel	B. Campbell, Kingston House Gardens.
HAMPSHIRE.			
Midsummer	Good	Heavy clay	A. Lee, Palace House Gardens.
Pears, Plums, and Cherries, middle of July; Apples afterwards	Good	Heavy and retentive, on clay which overlies chalk	E. Molyneux, Swanmore Park.
Plums, beginning of July; Pears next, and Apples afterwards	Aids maturation of wood. Induces formation of fruit buds.	Clayey loam on London clay	A. G. Nichols, Strathfieldsaye Gardens.
Pears and Plums, end of June; Apples in August	Good	Light, resting on gravelly clay	J. Wasley, Sherfield Manor Gardens.
KENT.			
End of July	Good. Aids ripening of remaining buds	Sandy loam, resting on sand	H. J. Knight, Preston Hall Gardens.
Apples and Pears on Paradise and Quince stocks, middle of July; Plums, July and August.	Very good	Stiff, with a subsoil of pink. This latter is like clay, and contains many stones.	G. Woodward, Barham Court Gardens.
August 1	Most beneficial	Sandy loam on Kentish ragstone	Geo. Bunyard, Maidstone.
July 10	Good	Light, resting on the Kentish ragstone	W. Lewis, East Sutton Park Gardens.
Cherries, Plums, &c., middle of June; Pears and Apples, early in July	Satisfactory	Loam on Kentish ragstone	G. Fennell, Bowden.
Apples and Pears, July 25 to August 1; Plums are not summer-pruned	Good		B. Champion, Mereworth.

RESULTS OBTAINED FROM THE SUMMER PRUNING OF FRUIT TREES—(continued).

DATE CONSIDERED BEST TO COMMENCE SUMMER PRUNING OF APPLE, PEAR, AND PLUM TREES, &c.	GENERAL RESULTS FROM SUMMER PRUNING.	NATURE OF SOIL.	NAME AND ADDRESS.
5, Southern Counties.			
KENT (continued).			
Apples, end of June and middle of August; Pears, middle of July; Plums, &c., end of July.	Indifferent here, except on young trees. Other districts beneficial	Light loam to gravel on a "pan"	W. Humphreys, Blendon Hall Gardens
First and second weeks in July	Good	Heavy loam on a brick-earth	W. Dixon, Old House Gardens, Walmer.
MIDDLESEX.			
Apples and Pears, after middle of July; stone fruits, much earlier; Peaches, as soon as fruits are removed.	Good	Light in texture, resting on gravel	G. Wythes (late), Syon House Gardens.
Any time during July	Good	Shallow and sandy, resting on gravel	H. Markham, Wrotham Park Gardens.
Apricots and Sweet Cherries, Pears, Plums, and Apples on walls, first or second week in June; second growth pinched to second or third leaf, middle of August.	Good	Loam, resting on clay	W. Watson, Harefield Place Gardens.
Apples and Pears, in July; Plums, &c., in November	Very good	Loam, resting on gravel	W. Bates, Cross Deep Gardens.
Apples, first week in July; Pears and Plums, end of June		Light loam on gravel subsoil	J. Hawkes, Osterley Park Gardens.
SURREY.			
July	Good	Chalk and flints	W. Bain, Burford Gardens, Dorking.
End of July or early in August		Sandy, on sandy subsoil	S. T. Wright, Royal Horticultural Society's Gardens, Wisley.
Middle of July	Very good	Calcareous loam on chalk	W. P. Bound, Gatton Park Gardens.
	Far better left alone, unless performed by a very skilful and careful operator		Rev. W. Wilks, Shirley Vicarage.
End of July and early in August	Satisfactory generally	Light and sandy on subsoil of pure sand	W. H. Honess, Cobham Park Gardens.
Apples, Pears, and Plums, second week in August (only laterals are pinched).	Good, if shoots are shortened to three leaves	Sandy and poor	O. J. Salter, Woodhatch Lodge Gardens.
End of July and early August (needs much discretion in choosing the proper time).	Very good	Light, almost gravelly loam	Alex. Dean, Kingston.
Apricots, last week in July; Apples, Pears, and Plums, early in August			G. Kent, Norbury Park Gardens.
SUSSEX.			
Plums and other stone fruits, middle of June; Apples and Pears, the first week in July.	Indifferent, except it allows the sun's rays to reach the fruiting spurs on trained trees	Light to clayey loam; subsoil sandstone impregnated with iron	A. Reid, Possingworth Gardens.
First week in July, taking Apples first, and following with Pears, afterwards Plums and other stone fruits.	Good	Flinty loam on chalk	W. H. Smith, West Dean Park Gardens.
Plums and other stone fruits, early in July; Apples, the end of that month; Pears, in August.	Very good	Poor, resting on sandstone	W. Brunnden, Brambletye Gardens.
All spur growths and side shoots when about 3 inches in length; Apples and Pears, generally in July.	Good	Retentive loam	G. Grigg, Ashburnham Place Gardens.
About the second week in July	Fairly good	Clayey loam, overlying yellow clay	W. Langridge, Ote Hall Gardens, Burgess Hill.
Pears, Plums, and other stone fruits, third week in June; Apples, end of June.	Good. Aids the development of the current season's fruits and the maturation of the wood	Mixture of loamy clay and sand	W. A. Cook, Leonardalee Gardens.
Stone fruits, early in July; Apples and Pears, from middle of July ..	Good	Light in texture and overlying chalk	E. Burbury, Arundel Castle Gardens.
About the first week in July	Fair	Subsoil of sandy rock	H. C. Prinsep, Buxted Park Gardens.
WILTSHIRE.			
Pears, the first week in July; Plums and Apples, a week later		Heavy and fairly deep on yellow clay	H. Gandy, Longleat Gardens.
Plums, Apricots, Pears, and Apples in this order, from June 25 to July 15	Good	Sandy loam on stiff clay	J. Bannerman, Lackham Gardens.
Pears, June 1; Apples, June 15; Plums and other stone fruits, end of June.	Good	Marl and chalk on gravel	T. Challis, Wilton House Gardens.
End of July	Good	Light loam on sand	Geo. Brown, Bowood Gardens.
Plums and other stone fruits, July 6; Apples and Pears, July 20 ..	Good	Brash limestone	W. Tinley, Malmesbury.
Middle of June, commencing with sweet Cherries and Plums, next Pears, finally Apples.	Excellent	Friable loam on chalk or gravel	S. H. Tucker, Longford Castle Gardens.
7, England, N.W.			
CUMBERLAND.			
Second week in July	Few failures	Medium in quality, resting on clay	T. Tunstall, Carleton Hill Gardens.
End of July	Good	Clay subsoil	B. Gowan, Castle Gardens, Whitehaven.
LANCASHIRE.			
Upper half of the trees, before end of July; lower part, a fortnight or more later.	Good	Good soil on clay	W. P. Roberts, Cuerden Hall Gardens, Preston.
Early in July	Good	Heavy loam on clay	E. F. Hazelton, Knowsley Gardens.
Pears, July 5; Apples, July 15; Plums and other stone fruits, July 20	Very good	Light loam on gravelly subsoil	W. Ashton, Wrightington Hall Gardens.
End of June and in July	Good, but judicious root-pruning is better in many cases	Moderately heavy on the red sandstone	B. Cromwell, Cleveland Gardens, Alleton.
End of July; stone fruits other than Plums are not summer pruned ..	Good	Light lime-stone overlying rotten rock and clayey sammel	G. Tansley, Witherslack Hall Gardens.
Last week in July	Practised only in the case of wall trees	Dark, sandy loam on white sand	B. Ashton, Lathom House Gardens.
WESTMORELAND.			
Second week in July	Fairly good	Heavy soil, resting on clay	F. Clarke, Lowther Castle Gardens.
End of July	Advantageous if the roots are under proper control	Gravelly and thin	W. A. Miller, Underley Gardens.
First or second week in July	Good	Principally limestone	W. Gibson, Levens Hall Gardens.
From middle of July to end of August	Advantageous, but Plums require moderate pruning only	Heavy loam to a light, sandy soil overlying clay and gravel	James Coupland, Brougham Hall Gardens.
8, England, S.W.			
CORNWALL.			
Wall trees, early in August; orchard trees, in August and September ..	Good	Adhesive loam and clay	W. Sangwood, Treclissick Gardens.
DEVONSHIRE.			
Pears and Plums, middle of July; Apples, second week in August	Beneficial	Light loam on gravel	W. H. Bennett, Menabilly Gardens.
Middle of July to middle of August		Good, heavy loam, sandy in parts	A. Hope, Exeter.
August	Satisfactory	Very light, resting on the Devon waterstone	G. Baker, Membland Gardens.
Apricots, middle of April; Pears and Plums on walls, June 21; Apples, afterwards.	Very satisfactory	Deep sandy loam on the red sandstone	J. Mayne, Bickton Gardens.
After the middle of July	Good	Heavy loam, subsoil sand, and in parts, clay	T. H. Slade, Poltimore Park Gardens.
Stone fruits, August 8; Apples and Pears, August 15	Good	Stiff loam on clay	T. Seward, Saltram Gardens.
GLOUCESTERSHIRE.			
End of May	Aids maturation of fruit-buds	Stiff loam, on the blue lias	W. Kenn, Bowden Hall Gardens.
Cherries and Apricots, mid-June; Plums, July 1-15; Pears, July 15-31; Apples, July 30 to August 15.	Beneficial	Friable to clayey loam on the old red-sandstone formation	J. Banting, Tortworth Gardens.
The first week in July	Very good	Light loam on limestone brash	W. Nash, Badminton Gardens.
Wall trees, the last week in June	Good	Loam on limestone	F. Walton, Stanley Park Gardens.
End of July	Good	Heavy soil on blue clay	A. Chapman, Westonbirt Gardens.
At intervals from beginning of June until August (Peaches, Nectarines, and Morello Cherries are disbudded, not pinched).	Good, when done in conjunction with occasional root-pruning	Strong loam on clay	A. Rogers, Sudeley Castle Gardens, Winchcombe.

RESULTS OBTAINED FROM THE SUMMER PRUNING OF FRUIT TREES—(continued).

DATE CONSIDERED BEST TO COMMENCE SUMMER PRUNING OF APPLE, PEAR, AND PLUM TREES, &c.	GENERAL RESULTS FROM SUMMER PRUNING.	NATURE OF SOIL.	NAME AND ADDRESS.
8, England, S.W.			
HEREFORDSHIRE.			
Pears, Plums, and other stone fruits, beginning of July; Apples, from middle to end of July.	Good	Heavy loam on limestone	T. Spencer, Goodrich Court Gardens, Ross.
Second week in July, commencing with Apples and Pears, and continuing with stone fruits.	Best results		G. Mullins, Eastnor Castle Gardens.
Apples and Pears, the first week in August; Plums a little later			C. Smith, Barton Court Gardens, Colwall.
MONMOUTHSHIRE.			
Pyramid trees of Apples and Pears, during July; wall trees, early in June; espaliers, end of June.	Aids ripening of the wood	Cold, tenacious loam on heavy clay	W. F. Woods, Llanfrehfa Grange Gardens.
Early in July	Good	Clayey loam on marl, and, in places, clay	T. Coomber, The Hendre Gardens.
Plums and other stone fruits, from the second week in June; Apples and Pears, from first week in July	Very indifferent, but in lower situations near this place, and on sandy loam, results are beneficial	Strong, tenacious loam overlying boulder clay	H. Townsend, Maindiff Court Gardens.
Apples and Pears on walls, in June; bush and pyramid trees, in August; stone fruits are not summer-pruned.	Not altogether satisfactory	Deep loam on red-sandstone	J. Basham, Fair Oak Nurseries, Bassaleg.
June and July	Favourable	Very heavy, and on the lias formation	W. Hallett, Cossington, Bridgwater.
WORCESTERSHIRE.			
Apricots, middle of July; Plums, Cherries, and Pears on walls, from middle of July; Apples in the open, middle of August; Pears, afterwards.	Good	Medium loam overlying the new red-sandstone formation	A. Young, Witley Court Gardens.
Last week in July	Satisfactory	Black garden-soil on sandstone	A. Pettigrew, Hewell Grange Gardens, Redditch.
Middle of July	Good	Heavy loam, bordering on stiff clay overlying red marl	W. Crump, Madresfield Court Gardens.
WALES:			
Pears, beginning of July; Apples, from middle to end of July; Plums, end of June.	Good	Heavy, on limestone	H. Weaver, Vaynol Park Gardens, Bangor, Carnarvon.
First and second week in August	Very satisfactory	Light, resting on hard rock	W. Speed, Penrhyn Castle Gardens, Bangor, Denbigh.
Wall trees, last week in July or first in August	No advantage in the case of standard trees	Light, overlying sand and gravel	W. Weir, Rhosnessney, Wrexham, Denbighshire.
Middle of July			J. Forsyth, Hawarden Castle Gardens, Flintshire.
Plums and other stone fruits, last week of June and first in July; Apples and Pears, afterwards.	Very satisfactory	Light loam, resting on gravel	R. Milner, Margam Park Gardens, Port Talbot, Glamorganshire.
Last week in July or first in August	Good	Light, dry loam, on gravel	J. S. Higgins, Rhiig Gardens, Merionethshire.
End of July or beginning of August; Plums just previous to these dates	Good; aids ripening of the wood and fruits	Stiff loam on clay	J. Lambert, Powis Castle Gardens, Montgomeryshire.
First week in July, but varies according to season			G. Griffin, Siebeck Park Gardens, Pembrokehire.
IRELAND:			
9, Ireland, N.			
Plums and Apricots, middle of July; Pears, last week in July; Apples, first week in August.	Good	Retentive, on clay	J. MacLean, Shanes Castle Gardens, Antrim.
Beginning of August	Good	Rich loam on limestone rock	W. Berry, Farnham Gardens, Cavan.
Peaches, Apricots, and Nectarines, early in July; Apples, Pears, and Plums, last week in July.	Very good	Stiff loam on a hard, calcareous subsoil	A. Campbell, St. Anne's Gardens, Clontarf, Dublin.
Not practised	Good	Light loam on adhesive clay	A. Porter, Woodlawn Gardens, Galway.
Apples and Pears, from middle of July to middle of August; Plums, the end of August.	Great improvement to wall fruit, especially stone fruits	Loamy, on hard, yellow clay	T. Dunne, Lough Outra Castle Gardens, Galway.
Commenced, the middle of July; Apples and Pears, early in August ..	Good, when practised in conjunction with autumn root-pruning	Heavy, shallow, and cold, and approaching clay; deficient in lime	P. Connolly, Cranmore Gardens, Mayo.
Plums and Pears, June 10; Apples, June 24	Good (helps to prevent canker in the trees)	Mostly a medium-heavy loam on cold, yellow clay	F. Walton, Sion House Gardens, Co. Tyrone.
Plums and Cherries, after the middle of June; Apples and Pears (laterals), early in July, leading shoots a month later.	Good	Gravelly, on a subsoil of pure gravel	G. Bogie, Pakenham Hall Gardens, West Meath.
Pears and Plums, end of June; Apples, end of July			W. Owey, Powerscourt Gardens, Wicklow.
10, Ireland, S.			
July 20	Indifferent when compared with trees in the southern English counties; the abundant moisture causes the lower buds to grow	Light, on a gravelly, marl subsoil	F. Browne, Borris House Gardens, Carlow.
Late June or early in July, commencing with Cherries, and continuing with Pears, Apples, and Plums, in this order.	Good in the case of wall trees; no benefit to standard or named bush trees; Apples give immense crops in the open without summer pruning	Retentive clay and limestone rock	A. Barker, Carrigoran, Co. Clare.
Plums, July 6; Apples, Pears, and other fruit trees, mid-July	Good in every case; benefits the size, colour, and flavour of the fruits, and develops the fruiting spurs	Good, rich loam on limestone	C. Price, Michelstown Castle Gardens, Co. Cork.
Last two weeks in July	Indifferent; the practice is almost discarded in these gardens	Heavy, and impregnated with lime, on a bluish, marly clay	Thos. Bedford, Straffan House Gardens, Kildare.
Last week in July or early in August; small fruits, early in July ..	Good	Varies from good loam to sandy soil; the subsoil is gravel	F. France, Beasborough Park Gardens, Piltown, Kilkenny.
July 25	Good	Clayey, on a retentive and bad subsoil	T. Rogers, Frenchpark House Gardens, Roscommon.
From July 20-31	Good	Loamy marl	J. Doolan, Minella Gardens, Clonmel, Tipperary.
CHANNEL ISLANDS:			
Apples and Pears, by midsummer; stone fruits, by mid-July	With some kinds it is essential, with others it is not	Medium loam on decomposing granite	C. Smith and Son, Caledonia Nursery, Guernsey.
Not generally practised; a system of autumn pruning is more in use. The practice of "spurring" in September is justified by results. In Jersey the foliage of fruit trees generally often hangs until middle of December.			H. Becker, St. Saviours, Jersey.
July	Good	Good soil, 1½ feet in depth	R. Reed, Spring Grove, St. Lawrence, Jersey.
ISLE-OF-MAN:			
About the middle of July	Indifferent	Shelly, on a subsoil of blue and white clay	J. Inglis, Brunswick Road Nurseries, Douglas.

TREES AND SHRUBS.

LABURNUMS.

THE freedom in which these beautiful deciduous trees have flowered this season has caused much admiration. Many gardeners appear quite satisfied with the beauty of the common variety, but there are others that are superior in every respect, and that produce flower-sprays which measure from 12 to 18 inches in length. As individual specimens on the grass few trees can excel the beauty of Laburnums, and, if arranged in groups, their effect is visible for some considerable distance. They will also thrive and furnish a good effect by the water side, or when planted on slopes, in parks or woods. Many varieties of the common Laburnum (*L. vulgare*) are to be seen, but these are seedlings, and, in some cases, are scarcely worth planting. The named sorts are usually budded upon stocks of the common variety, and the union of stock and scion can be detected either within a few inches of the ground, or, if standards are required quickly, some 5 or 6 feet of the common stock is allowed to grow before the bud or graft is inserted. I mention this because I have seen some cases in which the stock had outgrown the scion, which had, therefore, died. A conclusion must not be arrived at too quickly in the case of the graft hybrid *L. Adamsii*, the purple-flowered Laburnum, if yellow blooms are found intermixed with them, for it frequently happens this particular kind has not only separate branches of yellow flowers, but the two separate colours, yellow and purple, occur on the same shoots (see *Gardeners' Chronicle*, September 24, 1904, p. 219).

The usual form of standard is not the only means whereby these Laburnums may be grown in order to display their flowers to advantage; pyramids, as an instance, are in some cases preferable, while the practice of training the branches thinly and nailing them to the walls of dwelling-houses, provides an attractive feature. They are also very suitable for covering arches and pergolas, and the long flower-sprays of the varieties *Vossii* and *Watereri* hanging above one's head produce an effect that well deserves the name of "Golden Rain" sometimes applied to varieties of Laburnum. Of several varieties grown in these gardens, the best is certainly *Vossii*. The trusses, in some cases, measure 24 inches in length, and it flowers profusely. This variety and all the other Laburnums flower freely in pots, and form excellent subjects for decorating the conservatory or dwelling-house early in the season. Next in order of merit is *Watereri*: the habit of the tree is close-growing, and it is a very beautiful kind, with long racemes of flowers of a pale tint, very freely produced, and remaining in good condition for a considerable time; this variety forms a good succession to the common kind. *Parksii* is a large-flowered variety, and somewhat darker in tint than the two already mentioned, but perhaps its most distinctive feature is its large, bright-green, glossy foliage, which is very much like that of the commoner autumnalis. The golden-coloured foliage and flowers of the same hue are pleasing in this variety, and, for small and large gardens alike, it should be used much more freely than at present. As a single specimen upon the lawn the Weeping Laburnum has a distinct charm, and, if it hangs over the water, it is even more effective. Other desirable varieties are *Alsingeri*, *crispum*, *Gumperi*, and *fragens*. The present time is a favourable one to make a selection of varieties for planting in the autumn. *W. H. Clarke, Aston Rowant, Oxon.*

THE ALPINE GARDEN.

CAMPANULA GARGANICA HIRSUTA
ALBA.

Few Alpine Campanulas are more satisfactory even in northern gardens than *C. garganica hirsuta*, where it appears to thrive even better than the typical *C. garganica*. The white-flowered variety, *C. g. hirsuta alba*, is still far from plentiful. In habit it is practically a replica of the blue form, but has white flowers and is of rather less vigorous growth. The plant is a good subject for a sunny rockery, or it may be planted in wall gardens. This little white Bellflower is increased by cuttings inserted in summer time. A mixture of sand, loam, and grit form a suitable rooting medium. *S. A.*

The Week's Work.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Hedge-pruning.—As soon as the deciduous subjects have completed their growth, the hedges should be pruned. This work is often, through press of circumstances, delayed until the current growth has become tough and hard to cut; the secondary growth is then made late in the autumn and, failing to become properly ripened, gets cut by early frosts. Whenever possible, the pruning should be done with a pair of secateurs in preference to using shears and hooks, which slice the leaves and give the hedge a very unattractive appearance.

Topiary work will now entail much labour in pruning, stopping, and tying-in. Great care and patience must be exercised, as an error of judgment would, for a season at least, spoil any beauty this type of gardening possesses. It is usual to entirely entrust this work to one man, who, as a natural result of practice and experience, can carry out the work with greater satisfaction than would be the case if several men were employed.

Border Carnations.—These plants usually bear such a profusion of flower buds that to ensure flowers of good quality it is necessary to thin out the buds, leaving from three to five on each stem. The stalks should be kept tied to slender, inconspicuous sticks. The surface soil should be frequently hoed, and if a dressing of artificial manure be applied at this stage it will be beneficial.

Wallflowers.—Transplant the seedlings into the reserve garden before they become drawn and crowded in the seed bed. The seed bed should be in a fairly open situation, and a liberal quantity of leafmould, or manure from an old Mushroom bed, should be forked into the top spit, so that the plants will "lift" with a good "ball" of soil next October, when they are moved to their flowering quarters. Plant them out in rows, drawn at distances of one foot, putting the plants 9 inches apart in the rows. The Dutch hoe may then be freely worked on the surface soil as occasion requires. As soon as the plants have become established, pinch out the leading shoot to induce a dwarf and compact habit.

Double Wallflowers need to be increased by cuttings, which should be moderately firm in texture, but not tough and wiry. When possible, secure shoots having a "heel" of old wood attached to them. They will be the more certain to make roots if they are firmly inserted in pots or boxes of sandy soil, and kept close in a cold frame. When roots have formed the plants should be planted out in the same manner as seedlings.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Pineapples.—Early started Queens, from which the fruit has been cut, should have the suckers detached, and these suckers should be potted up into 6-inch pots. The old plants may afterwards be thrown out. Provide each pot with perfect drainage, and pot the suckers firmly in turfy loam. Plunge the pots in a bed having considerable bottom heat, and the plants will soon make roots. Shade them from bright sunshine, and keep the house close and the atmosphere moist. Suckers that are already well rooted should now be potted into the pots in which they will fruit next year.

Plants that are swelling their fruits require a moist atmosphere, and a temperature of 85° during the day and 80° at night. When air has been admitted during the day, let the ventilators be closed again early in the afternoon. Afford manure water in a tepid condition twice each week to all such plants.

Figs.—As soon as the crop is gathered, supply the plants with manure water whether they are growing in pots or borders. Apply a fresh mulch of short stable litter in order that it may assist in the development of the second crop. Syringe the trees freely, maintaining a moist atmosphere, and guard against the appearance of red spider.

Peaches and Nectarines.—Where early crops have been gathered, syringe the trees three times

a week, and if red spider has been troublesome syringe every day with a solution of soft soap, hot water, and sulphur, as directed in a previous Calendar. This will keep the foliage fresh and clean throughout the summer. Keep both top and bottom ventilators open both night and day. If the borders are found to be in the least dry give them a thorough watering. A most important item in their culture at this season is to thin out the shoots wherever the trees appear to be overcrowded with young wood. Remove bare shoots and those that will not be required to tie in for next year's crop. This system of pruning prevents "gumming," and allows the remaining shoots to become thoroughly matured.

In the later house, where the Peaches and Nectarines are stoning, the trees require to be kept comparatively cool, as they must not be hurried at this particular stage. Examine the trees and give the fruits a final thinning, always leaving those fruits which are placed on the upper side of the shoot. Syringe the trees until colouring commences night and morning, except where mildew is feared; in such cases, the afternoon syringing must not be practised. The atmosphere can be kept humid by partly closing the house early in the afternoon. Tie in all young growths it is wished to retain, but cut out any that are of extra and undesirable strength. Keep a sharp look-out for red spider.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Peas.—Plants raised from the sowings made last November will now be in full bearing. We commenced on the 6th inst. to gather Peas from the variety Little Marvel sown in November and cultivated on a south border. Continue to make further sowings for producing late supplies. All plants that are well advanced in growth should be given a good mulching of stable litter. If the weather becomes dry afford them a good soaking of water, and syringe them overhead early in the evening. This will greatly assist the pods to set and the Peas to develop; make another sowing of Sugar Peas if this type is appreciated. Sugar Peas should be afforded the same liberal treatment as is advised for ordinary Peas, for if neglected in dry seasons the plants soon become exhausted.

Brussels Sprouts.—If the work has not already been done, the main crop of these should be planted out at the first opportunity, for undoubtedly this is the most appreciated of all winter vegetables, and failure, or but indifferent results would cause great disappointment.

Broccoli and late Cauliflowers.—Make further plantings of these, and all other winter vegetables. Afford them waterings in the event of dry weather occurring before the roots get well established in the soil, and if the surface of the ground should become "caked," this must be broken by the use of the hoe. Should the weather remain showery, frequent hoeings will be all that are necessary.

Leeks should be planted out at once in ground which has been prepared previously. Plant them in rows made from 6 to 12 inches apart, in holes which should be deep enough to contain the plants so that the base of the leaves only will appear above ground. If the soil is very dry at the time of planting, it will be well to pour water into the holes before inserting the plants.

Carrots.—Early varieties should be sown now for drawing whilst young, and if another sowing be made a little later on, in a border where they can remain throughout the winter, if covered with a few leaves, the crop will be found very serviceable.

Onions.—For the raising of young plants for use in the making of salads, seeds should be sown at frequent intervals, as it is advisable to have these young and tender.

General work.—Close attention must be given to all crops in the kitchen garden, in the matter of keeping them free from weeds; the surface soil should be broken frequently, and a loose, crumb-like layer kept as a surface. If watering has to be resorted to, this work must be done thoroughly, and it must be repeated at intervals until a heavy rainfall occurs, when it may cease to be necessary.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq.,
Eastwell Park, Kent.

Cyclamen.—If the early batch of seedlings have not been placed into the pots in which they will flower, no time should be lost before doing this work, as the plants will be expected to commence flowering in autumn. Choice flowers are especially valuable late in autumn, and it is doubtful if many plants are capable of giving better returns at that time than may be obtained from well-grown Cyclamen. For the potting mixture use a compost consisting of two parts fibrous loam and one part leaf-soil, adding sand, charcoal, and a little dried cow-manure. Return the newly-potted plants to a frame that will not be fully exposed to the sun's rays. In any case careful attention must be given to providing the plants with proper shade. Arrange them thinly in the frame in order that the air may easily circulate amongst them; with this object in view it is a good plan to stand them on inverted flower-pots. When the plants are well established and growing freely the lights may be drawn entirely off in the evening, the cool night dews being very beneficial to Cyclamen. Replace the lights early on the next morning. Many growers advise throwing the old plants away after flowering, but this is a pity unless the space is required. I usually select the best forms when the plants are in flower and retain these for another season, discarding those only which are inferior. These two-year-old plants always bloom splendidly. These should also be potted up, taking care not to destroy the roots, which on examination will be found to be active. We do not dry off the corms so severely as was the practice formerly, and after they are repotted, the old plants are treated similarly to seedlings. Keep a look-out for thrips and aphides, fumigating regularly to prevent these pests obtaining a footing.

Scutellaria Mocciniana.—For brightening up the stove a few well-grown plants of this species are very useful. It is fairly easy to propagate, young shoots taken off half ripened wood rooting readily. When ready for potting a compost consisting of turfy loam, manure from a spent Mushroom-bed with charcoal and sand added, will be found suitable. Pinch the tops of the shoots once or twice to ensure a good habit in the plants, and in the spring cut back old plants fairly hard, keeping the roots drier than usual. When the young growths are about an inch long repot the plants, giving them a fairly good shift. The plants will require but little more attention than is necessary to keep them clean.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence,
Bart., Burford, Surrey.

Heating, shading, and ventilation.—Up to the present time the weather has not been favourable generally to the growth of Orchids, especially tropical species, which delight in a great amount of sun-heat. Opportunity should be taken on warm, sunny afternoons to give the plants which occupy the warmest division generous treatment in every respect. Close the house and draw up the blinds as early as may safely be done without causing injury to the plants, so that the atmospheric temperature may rise to between 80° and 90°, or higher if the sun is sufficiently powerful. At the same time thoroughly damp the stages and floors, particularly under and near the hot-water pipes. If the roof glass is stippled, as advised in a former Calendar, the blinds may be raised soon after 3 p.m., but plants that have no such protection from direct sunshine should not be exposed to its influence until 4 p.m. at the earliest, or even half an hour later. In a mixed collection it is difficult to suit all the various species, &c., in this division as regards shading, but if the tender-leaved plants are placed at one end of the house, they may easily be protected from the sun with ordinary garden mats after the blinds are taken up. Such species as the deciduous *Calanthes*, *Dendrobium*, *Catasetum*, *Cycnoches*, *Mormodes*, *Schomburgkia*, terete-leaved *Vandas*, and others of the same habit of growth as *Scuticarias*, &c., also *Lissochilus*, *Eulophias*, *Cyrtopodium*, *Renanthera*, &c., thrive in almost an unlimited degree of sun heat. While such genera as *Cypripedium*, *Phalænopsis*, *Angræcum*, *Aërides*, *Saccolabium*, *Cirrhopetalum*, *Bulbophyllum*, *Phaius*, &c., also reveal in the tropical warmth, they require much more shade than the others. It is essential

that all of these plants, with the exception of *Phalænopsis*, that are now making their growth, should be well supplied with water, particularly *Dendrobiums* that are making many roots, because if these are allowed to become too dry at the root, the young shoots may get a check that would cause them to finish up prematurely, and then to start a fresh lot of young breaks, which would cause the plants to bloom unsatisfactorily. Immediately after closing and damping the house, it is advisable to afford these *Dendrobiums* a good syringing with tepid rain water, directing the water well up under the leaves, which will assist to promote healthy growth, and to keep the foliage free from red spider and other insects. Should red spider make its appearance, it must be immediately eradicated. My practice is to take every plant down and well syringe the foliage with Gishurst's compound, mixed according to the directions given by the manufacturers, and adding XL-All liquid insecticide at the rate of one part to 20 of the former mixture. The preparation should be applied at a temperature as warm as it is possible to bear one's hand in. When syringing the foliage hold the plant over a large bath, so that none of the mixture will be wasted, and immediately after each plant has been cleansed, give it a thorough syringing with clean tepid rain water. After closing the house early in the afternoon with sun heat, the atmospheric temperature will rise to the figures mentioned above, and probably higher, but it should gradually fall during the evening, and the last thing at night, if the weather is suitable, a "chink" of air may be admitted through the top ventilators, leaving these open all night, so that by early morning the thermometer will register about 70° of heat.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bickton,
East Devon.

Pears.—Some varieties in these and other local gardens require the fruit to be thinned, but others have been severely thinned by the Pear midge, a pest that cannot be easily exterminated. Trees that are annually attacked, after due precautions have been taken in respect to spraying, &c., should be removed to fresh sites in the autumn. This would tend to lessen the numbers of the pest, especially if the old soil is removed and the trees are replanted in fresh soil. Secure all leading shoots to the wall or trellis where there is still room for extension, and apply manual waterings to trees growing against hot walls, as the rainfall is always exceptionally light near to the base of a wall.

Peach and Nectarine trees should be assisted with frequent manual waterings during the next few weeks, the stoning process causing a great strain upon the trees. Good crops appear general this season. Owing to so much cold and sunless weather black fly has proved troublesome on some of our trees, causing us to make frequent applications of quassia extract, followed up next morning with a thorough washing with clear water so that no stain shall be left on the fruit. Continue to regulate and train the young shoots, pinching out any lateral growths. Relieve any pressure there may be on any of the swelling fruits. Expose the fruits of early varieties of the Peach, such as *Waterloo*, *Amsden June*, and *Alexander*, as well as *Early Rivers* Nectarine (one of the best for outside culture), in such a manner that the rays of the sun will reach them. Do not rely on the frequent showers to keep the trees free from red spider. It being underneath the foliage that this pest makes its appearance, the periodical syringings twice or thrice each week should still be carried out.

Morello Cherries.—The shoots will now require to be trained in the direction they are to take, which may be quickly done by using similar material as advised for the Peach three weeks ago, care being taken that the young shoots are not damaged in the operation. Pinch at the fourth leaf any shoots retained to form spurs, and the points of any leading shoots that will be cut away later in the season. The quassia extract must be persevered with if black fly is still in evidence. Most of the recent rains have come from the south or south-east, so have not benefited much those fruit trees

which are growing on north aspects, a position usually, and I think rightly, allocated to the Morello Cherry. Manure water, as in the case of the Peach, will assist the trees greatly at this season, and there is no better stimulant than that to be obtained from cow manure or the stable-yard, the former for preference. Unless very hot weather sets in a mulch is unnecessary for trees growing in these cool positions, especially if the surface soil is frequently stirred with the flat hoe, or pricked up with the fork so as to prevent it getting hard and therefore cracking. If it is thought necessary to apply a mulch, it should consist only of light, strawy litter.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and
Open Spaces in the City of Cardiff.

Birds.—The bird-life in a park, whether introduced, semi-domesticated waterfowl, or native wild birds, is a source of pleasure to most visitors. Everyone is more or less susceptible to the charm of the notes given forth by native songsters, and during spring and early summer birds are by no means the least attraction a park may possess. The interest that they evoke is not confined to their songs, for their very appearance, coupled with the fact that they are living, moving creatures, always make them attractive objects. Although there is nothing musical in the note of the duck or swan, yet these birds are a source of pleasure and amusement to the younger visitors.

How to encourage birds.—Few creatures seem to realise when they are in a safe asylum so quickly as do wild birds. In public parks, where all birds are more or less free from molestation, the most timid and wary species, as a rule, throws off its shyness and appears boldly in the open. A good illustration of this is often seen in some of the busiest London parks, where that most shy bird, the wood-pigeon, feeds quite unconcernedly within a few yards of visitors. The "dab-chick," or lesser grebe, the coot, and the moorhen—all naturally very shy birds and difficult to approach in their wild haunts—have become constant park habitués, the first and last breeding freely in some of the most frequented places where ponds or lakes exist. In this neighbourhood kingfishers, wood-peckers, tufted-ducks, poachards, widgeon, and teal are regular visitors to the parks, and disport themselves so openly that the public has become quite familiar with their appearance. The kingfisher has bred regularly for many years past within a few yards of one of our fish hatcheries. Although it has on several occasions been caught making too free with the young trout, its rarity and beautiful plumage have saved it from well-merited punishment.

Greater interest in habits of birds.—Apart from what may be considered the sentimental regard for wild birds which is common to us all, a large and increasing section of the public takes an interest in them by, among other things, studying their distribution and migratory habits. So popular has ornithology become that few park guides are published now which do not include a list of the various kinds of wild birds observed in the park from time to time. Daily newspapers also appreciate the interest taken in this subject, and are ready to publish any information sent to them regarding the presence of rare, or the arrival of migratory, birds in the locality. It is pleasing to note that this increased scientific interest is not accompanied by a craze for collecting, and few are more persistent in their denunciation of the destruction of rare birds than true ornithologists. A few living specimens in a free state are usually of far more actual interest than a whole collection of stuffed ones. Notwithstanding the fact that most birds are looked upon as very bad gardeners, and are ruthlessly destroyed in many private gardens, they can do but little damage in a park. They should not merely be protected, by prohibiting birds-nesting, netting, and the use of the catapult, but where possible every facility should be given the birds for breeding. In the vicinity of water, reeds may be planted in many out-of-the-way corners where they could easily be left intact when cleaning-up operations take place in the autumn. These could afford protection to many kinds of birds during the winter, and nesting places for them in spring.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

Special Notice to Correspondents.—The Editor does not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editor does not hold himself responsible for any opinions expressed by his correspondents.

Illustrations.—The Editor will be glad to receive and to select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c., but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, JUNE 24—Midsummer Day.

TUESDAY, JUNE 25—

Roy. Hort. Soc. Coms. meet.

Brit. Gard. Assoc. Ex. Coun. meet.

WEDNESDAY, JUNE 26—

Colchester Rose Sh.

Richmond Fl. Sh.

Reading Rose Sh.

THURSDAY, JUNE 27—

Isle of Wight Rose Sh. at Shanklin (provisional).

Canterbury Rose Sh.

FRIDAY, JUNE 28—Roy. Bot. Soc. meet.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—61.8°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 19 (6 P.M.): Max. 67°; Min. 51°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 20 (10 A.M.): Bar., 29.9; Temp., 61°; Weather—Bright.

PROVINCES.—Wednesday, June 19 (6 P.M.): Max. 62°. Lancaster; Min. 55°, Bedford.

SALES FOR THE ENSUING WEEK.

WEDNESDAY—

Palms, Bays, Ferns, and other plants, at 1; 100 lots of Dwarf Japanese Trees, at 2, by Protheroe & Morris, at 67 & 68, Cheapside, E.C.

Summer Pruning. At the present season the question of the desirability or otherwise of summer pruning is doubtless receiving attention

from those engaged in the cultivation of fruit trees. Of late years the practice has apparently become more general, and so far as our information goes there are few cultivators of high-class fruits that do not prune some of their trees, in more or less degree, whilst they are still in leaf. It is generally recognised, however, that trees which are grown without any root restriction, and that have ample room for branch development, need no summer pruning, and in any case it would be impracticable to attempt to apply the system to standard trees in the orchard. All the pruning such trees require is an adequate thinning of their branches, that thereby the trees will continue in such a condition that most of the shoots will be exposed to the rays of the sun, and to the influence of the air as it circulates freely among them. Every fruit-grower should know that thinning is necessary in order that the leaves may be able to properly discharge their functions in respect to the elaboration of the sap, to ensure the thorough maturation of the shoots

before winter, and the development of the buds to the degree essential for the production of good crops of fruit. This system suits the type of tree we have mentioned very well, but it will be admitted that it is not a method that best secures regularity in the crops, or that may be depended upon to produce fruits of the finest size and quality. It answers satisfactorily the purpose in view, which is the production of fruit crops under the simplest and least expensive conditions.

Fruit trees are grown under many diverse circumstances, and in the cultivation of almost every other form of tree, whether cordon, espalier, wall, pyramidal or bush, some degree of training is adopted. Following the practice of training, which in every case imposes some degree of restriction in growth, summer pruning has become part of the recognised yearly treatment. Severely trained trees are grown in limited areas, and the various operations to which they are subjected are always of an artificial nature, for pruning of any description, and in any season, is admittedly artificial. If a gardener were asked for his reason for pruning at all, he would probably justify the practice by the object he has in view, that of fruit production, to secure which result it is necessary that the production of wood growths should be restricted. It is an attempt to divert the natural forces within the tree into channels that favour the objects of the fruit-grower rather than those of the tree itself.

One fact in regard to summer pruning appears incontrovertible; the more restrictive the general treatment to which a tree is subjected, the greater need there is for removing part of the growth in summer. Thus, if we take an extreme case, the trained trees against walls or on trellises, owing partly to the branch pruning they receive, almost invariably make such a quantity of "breastwood" that it becomes imperative to stop such growths when they have made a few leaves, in order that the fruits may have an opportunity to ripen, and the lower buds on the new shoots become sufficiently exposed to the sun and air.

In respect to espalier, and even bush, and pyramidal trees, it is claimed that by summer pruning the current season's shoots are made to produce ultimately fruit, through the creation of flower buds or "spurs," from what are primarily merely wood-producing buds, and would remain such in the absence of pruning. It may also be urged, and with good reason, that if trees which produce a large number of long shoots are left untouched until winter, and most of them are then shortened or cut out, the trees may be expected to produce as much useless wood in the following summer as hitherto. By summer pruning the tendency to make such growth is not increased as it would be by severe winter pruning; it is rather diminished.

But the gardener has another means of controverting such a tendency, and it consists in root-pruning. Theoretically, it may be advanced that if branch-pruning and disbud-ding are practised upon a tree for any considerable length of time, a condition is brought about which renders it necessary to prune the roots in order to bring about the balance or proportion between the root system and branch development that is

necessary for fertility. Root-pruning, however, is laborious work, and, therefore, expensive, and how often it should be employed in the place of summer pruning is a matter for the judgment of the individual fruit grower after consideration of the particular circumstances in his case. At the best, root-pruning is a treatment of an occasional kind only, but summer pruning is much more easily performed and can be carried out every season.

In summer pruning the operator has to distinguish carefully as to the best time of growth for carrying out the work. The purpose being to cause the buds on the lower part of the shoots so pruned to become perfectly matured, it is important that the pruning should not be done so early in the season that such buds will be forced into growth during the same season, for the result of this would be that the ripened buds being forced into growth, new shoots would form, upon which the buds would be very immature at the commencement of winter. It might, on the contrary, be done too late for the operation to be followed by the good effects desired.

For these reasons, and because we had grounds for believing that there was much divergence in the opinion of gardeners as to the choice of dates for the practice, we collected last autumn the opinions of many correspondents who take special interest in fruit cultivation. The information they obligingly sent us we reproduce in the present issue as affording to every fruit grower some details of the practices followed by others engaged in the same pursuit as himself. The exact questions submitted to our correspondents were as follow:

(1) What date is, generally speaking, the best in your district to commence summer pruning of—(1) Apples, (2) Pears, (3) Plums and other stone fruits?

(2) Are the general results good or indifferent?

(3) What is the nature of the soil and sub-soil?

Reference to the tables will show that the replies to the first question vary considerably. Some operators commence summer pruning in June, others in August, but the great majority do so in July. It does not seem possible to perfectly explain the discrepancy of the difference in locality, or the character of the soil where the trees are growing, though these circumstances may be expected to have some bearing, at least, on the subject. It appears highly probable that, whilst some growers prune too early, others commence too late to obtain the best results. Plums are generally treated before Apples and Pears.

The answers to the second question indicate that the great majority of cultivators of first-class fruit believe that summer pruning is beneficial, for, whilst more than 150 reporters state that the results are satisfactory, only 35 express doubts on the efficacy of the practice. It seems likely that summer pruning is least called for in gardens where the soil is of a light nature and rather poor, especially if these conditions exist in localities where there is usually a considerable amount of sunshine, because in such cases the trees are not likely to make an excessive quantity of growth.



RHODODENDRON, DUKE OF CORNWALL, RECOMMENDED AN AWARD OF MERIT BY R.H.S.
ON MARCH 19 LAST; COLOUR OF FLOWERS, BRILLIANT RED WITH DARK SPOTS.

It may be remarked here that the experiments carried out on the Duke of Bedford's experimental fruit farm have not been favourable to summer pruning. In the Seventh Report of the Woburn Fruit Farm (1907) reference is made to the subject, and it is stated that there is nothing further to add to what was recorded in the Fifth Report, but it is admitted that "so much depends upon the character of the season and soil, on the nature of the varieties, and on the actual date of treatment, that it is impossible to give any certain pronouncement on the strength of the result available up to the present. It is intended to make other experiments on a more extensive basis in the immediate future." On the contrary, an experienced fruit grower, writing to us on the subject of summer pruning, states that, "with the retention of good leafage on the spur, there is developed through active sap agency a change in the nature of hitherto dormant leaf buds, and ere the leaves fall, these buds have become changed from mere shoot-producers into incipient fruit buds, and, if in the winter the spur be cut back to but two such buds, one or both will swell up the next year, and thus become effective fruit buds."

Naturally, the circumstances are different in the case of Peach and Nectarine trees, Morello Cherries, and Black Currants, all of which produce their fruits on shoots of the previous season's growth. Therefore, in these cases, not summer pruning, but ordinary thinning out or removal of crowded shoots is required. There are certain varieties of Apple, also, which bear at the ends of the shoots, and these should be exempt from summer pruning. It is good practice to commence summer pruning at the top of a tree, and complete the pruning of the lower branches a few days afterwards. Many careful fruit growers have found that good results follow a system of summer pruning, which consists merely in twisting the shoot partly off, allowing the end to hang down until it is cut off in the winter. The effects appear to be better than if the end of the shoot is cut off in summer, but the appearance of the trees thus treated is untidy and the practice is scarcely one that is likely to be adopted generally.

We do not know that any positive conclusions can be drawn from the details our correspondents have been good enough to furnish, but, at the least, they represent the opinions of numerous experts, and are, therefore, worthy consideration from those who are interested in the subject of summer pruning.

OUR SUPPLEMENTARY ILLUSTRATION to the present issue is reproduced from a sketch made by Mr. WORTHINGTON G. SMITH of a hardy Rhododendron which was shown at the meeting of the Royal Horticultural Society held on March 19 last. It was exhibited on that occasion by Mr. R. GILL, Tremough, Devon, who informed us that the parentage of *R. Duke of Cornwall* was that of a variety of *R. arboreum*, crossed with the species *R. barbatum*. The leaves of "*Duke of Cornwall*" are 10 inches long, 2 inches across at the widest, and almost smooth on the under surface. The variety is specially valuable for its brilliant colouring, the brightly-tinted red lighting up grandly under the rays of the sun. The illustration shows that the flower-truss is compact and shapely, and the variety will undoubtedly be welcomed, its hardiness being equal to that of *R. Pink Pearl* or *R. X Kewense*.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the committees will be held on Tuesday, June 25, in the Hall in Vincent Square, Westminster. In the afternoon, at 3 o'clock, a lecture will be given on "Peculiarities of Leaf Arrangements."

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The 68th Anniversary Festival Dinner, in aid of the funds of this institution, will take place at the Hotel Metropole, London, on Wednesday, June 26. The Hon. WALTER ROTH-SCHILD, M.P., will preside, and will be supported by, amongst others, the Rt. Hon. MARK LOCKWOOD, M.P., Alderman Sir MARCUS SAMUEL, Bart., Sir EDGAR SPEYER, Bart., Sir E. D. STERN, Sir CLIFTON ROBINSON, J.P., Sir GEORGE BARHAM, STUART M. SAMUEL, Esq., M.P., EDWARD TERRY, Esq., &c., &c. Contributions, to be placed on the chairman's list and announced at the dinner, will be thankfully received by the treasurer, HARRY J. VEITCH, Esq., 34, Redcliffe Gardens, South Kensington; the bankers, Messrs. GLYN, MILLS, CURRIE & Co., Lombard Street, E.C.; and the secretary, Mr. GEORGE J. INGRAM, at the offices, 175, Victoria Street, Westminster. We hope all our readers will do their utmost to make this event successful. In order to place the committee in a position to provide for the necessitous candidates a larger income than heretofore is absolutely necessary.

SUMMER PRUNING IN THE TRANSVAAL.*—Too little attention has been paid in the past to the systematic pruning of all fruit trees in the Transvaal, either in winter or summer, and consequently we find that the fruit produced here, though sometimes plentiful in quality, is almost always lacking in size and appearance. Summer pruning is one of those operations which has become popular comparatively recently. Its extensive adoption in California originally was caused by the fact that, when practised, it sometimes had the effect of making the Moorpark Apricot, which is there a somewhat shy bearer, produce crops more regularly. Success in that direction led to a more extended use of the practice, and now it is applied in a more or less general manner to Apricots, Peaches, and Plums with similar intent. The right time for this operation to take place has been a matter of much discussion, and a good deal depends upon local circumstances. In this Colony it will be generally acknowledged that all trees have a tendency to make a rampant growth during our hot and usually wet summer months. One result of this is that, if left untouched until the ordinary winter pruning, a good deal of the energy of the tree has been wasted, in so far as the producing of fruit is concerned. Another is that the heavy top growth tends to render the tree more helpless in case of the high winds which are sometimes prevalent, as, owing to the extra leverage, the wind obtains greater power, and blows the limbs about in such a manner as to cause serious damage to both the tree itself and possibly any fruit that it may be carrying. Another reason for summer pruning is present in considering the form one wishes the tree to assume. Oftentimes one or two branches will display a tendency to much more rapid growth than the others, and it is advisable to stop these by pinching off the tops with the thumb and finger, thus reducing the whole growth to some degree of symmetry. A frequent trouble is the "Water Sprout," a long, straight-growing, greenish-looking shoot, which is liable to start up from the interior branches of the tree. These should be removed entirely by cutting them off close to the base, either with a knife or pair of pruning shears; they only run away with an amount

of sap which should proceed in the ordinary channels to help support the entire head of the tree. It is, further, a good plan to remove by rubbing off in the early stages any incipient growths of new limbs which show themselves in places where they are not desired; this also helps to strengthen the top, whilst, at the same time, preventing undue crowding in the centre of the tree. It will be seen, therefore, that there are three prominent reasons why summer pruning should be practised. As a rule, it is safe to commence that operation, when intended to induce regular bearing, as soon as the fruit is picked. When the object to be attained is the strengthening and general conservation of the energies of a tree, it may be performed at almost any time during the growing period, when it appears that the tree is getting out of hand. If practised before an unduly heavy growth has been made, the necessary work may be done by simply nipping off the ends of the green shoots; this has a tendency to the formation of fruit buds, as well as to mature the growth already produced. If the branches have attained some considerable thickness, recourse must be had to the pruning shears, and a general lopping off of superfluous growth undertaken. When merely intended to conduce to the general appearance or symmetrical form of the tree, the necessary work may be done any time when the limbs which seem undesirable make themselves unduly prominent. It is also a good plan to cut back all new growths from grafts put in during the previous winter or spring to a reasonable limit, say 18 inches or thereabouts, and, if necessary, a further shortening in may be resorted to later.

RHODODENDRON EXHIBITION IN THE ROYAL BOTANIC SOCIETY'S GARDENS.—The exhibition of Rhododendrons by Messrs. JOHN WATERER & SONS, LTD., of which a note was published in our last issue, will remain open until the end of the present month. A splendid effect is made with plants of *R. hybridum* in the sunken exhibition area, the plants in tubs, pots, or without receptacles at all, as dug up from the open ground, being formed into groups of irregular shape, with borders surrounding them. These are arranged in somewhat compact masses, sloping from the front backwards, the taller plants being standards of chiefly older varieties, and every plant, new or old, is flowering abundantly. Owing to the ground being raised at the ends, the whole exhibition can be seen at once. A few foils to the masses of bright tints are afforded by standard trees of variously tinted foliage, and the introduction of such plants as *Kalmia latifolia*, *Viburnum plicatum* profusely flowered, and hardy Azaleas. It being impossible to give a list of all the beautiful varieties observed, it will suffice to notice a few of those which appear most remarkable and distinct. Baron Schröder has flowers of a purplish tint, with a yellow blotch. Concessum has a light centre, bordered with rose colour; Cynthia is rosy crimson and has a fine large truss; delicatissimum is a well-known light coloured flower, very showy; Earl of Shannon has flowers of dark crimson, and they possess fine shape; fastuosum is a semi-double flower of light lilac tint; Frederick Waterer has large flowers and truss, and is coloured bright crimson; Gomor Waterer is white, with a slight flush, and the flowers are produced in a very large truss; John H. Agnew is pale blush, with brown spots; Kate Waterer is of clear crimson-rose; Michael Waterer, bright crimson, of extra fine form and habit; Mrs. John Clutton is a clear white flower; Mrs. Tom Agnew, white, with a blotch of pale yellow; and Princess Hortense has lilac-rose coloured flowers, produced in extremely fine trusses.

* Extract from a leaflet issued by the Transvaal Department of Agriculture.

THE LATE DR. MASTERS, F.R.S.—The Rev. W. WILKS, M.A., has addressed the following letter to the editor of the *Times*:—"Sir,—My excuse for addressing this letter to you is that all England has of late years been roused to a love of Nature and gardens, and the *Times*, more than any other paper, reaches all England. The whole gardening community has undoubtedly experienced a very great loss by the death of Dr. MASTERS. I am old enough to remember him as a comparatively young man—indeed, I distinctly remember his father before him—and during my life-time (the whole of which has been intimately connected with garden pursuits and interests) I do not think we have ever had a man with such a combined capacity, willingness, and aptitude for instructing us everyday gardeners in the bearing and application of science as regards gardening. It is an exceedingly common failing with all teachers to teach over the heads of their audience, and this, I think, is specially noticeable in men of high scientific attainments. They seem to be so immersed in scientific terminology as almost to think in technical phrases, and so become almost, if not quite, unable to express their meaning in terms and in words which we, 'the vulgar,' can appreciate. Dr. MASTERS was quite the opposite. I never knew anyone who could present a natural law or a scientific discovery and their bearing on the art of horticulture in such simple, every-day language, easy to be understood of the people. He combined, as I said, the capacity to instruct, with the willingness to impart, and, best of all, with the aptitude of *how* to instruct; and he never minded condescending to explain in the most simple words of the people. His loss, therefore, is great, and I think that all who love gardens ought to do something to perpetuate his memory, and what I would venture to suggest as the most fitting memorial issues directly from what I have said of him. Just as there are foundation lectures in law, in medicine, and in theology, so let us establish 'The Masters Lectures' on the application of science to horticulture. Let us raise a fund sufficient to provide an adequate fee acceptable to the most renowned scientists among us to deliver a series of three or five lectures annually, the lectures to be delivered in the first instance before the Royal Horticultural Society, and to be afterwards printed and circulated amongst all the gardeners' mutual improvement and similar societies throughout the land. In this way we should not only perpetuate the memory of our good friend, but also his work—a point which he himself, with his habitual modesty of demeanour, would, I am certain, have considered of far greater importance. If this suggestion of mine meets with the general approval of those who knew Dr. MASTERS personally, or through the *Gardeners' Chronicle* (of which he was for so many years the distinguished editor), I shall be happy to join with them in its promotion.—W. WILKS, Vicar of Shirley, Sec. R.H.S., Shirley Vicarage, Croydon."

TRANSPLANTATION OF AN OLD YEW TREE.—In consequence of the transference of the Botanical Garden of the Senckenburg Natural History Society in Frankfurt-on-the-Main from the interior of the city to the Ginheimer Höhe, the removal of the great Yew tree, planted 300 years ago, was decided upon, and was actually carried out by the Frankfurt building firm of Messrs. PHILIPP HOLZMANN & Co. The work lasted from May 24 to May 30, 1907, so difficult was the passage of the enormous mass through the streets to the new situation. The tree had been gradually prepared for removal during the three previous years by cutting through the roots and encouraging the formation of young roots at the wounded ends by the introduction of rich soil, a work that was carried out by Mr. RUDOLF GUNTHER, the head gardener. This

operation had reduced the size of the ball to about 4 metres square and 2 metres in depth, and having a total weight of tree and soil of 40 to 45 tons. The distance to be travelled was $\frac{3}{4}$ kilometres. It may be of interest to state that advice was sought from Messrs. W. BARRON & SON, Derby, a firm which has had much experience in the removal and transplanting of large trees. [See *Gardeners' Chronicle*, April 6 last, p. 222.] The representative of this firm gave advice in the same sense as the earlier specialists who were consulted, and which could only be followed in part. The ball, a quadrangular mass, was securely boxed-in on all sides, and placed upon four baulks of strong timber, under which were placed several rollers. The hauling power consisted of a steam-driven street roller. The operations are recounted and illustrated in *Die Gartenwelt* for June 15.

HORTICULTURAL COLLEGE, SWANLEY.—The prizes will be presented to students on Friday afternoon, July 12, by Sir WILLIAM HART DYKE, Bart. Sir JOHN COCKBURN, K.C.M.G., will take the chair at 4 o'clock.

AGRICULTURAL EDUCATION.—The Departmental Committee, of which Lord REAY is chairman, held meetings on the 11th, 12th, and 13th inst. Representatives of the Cumberland and Westmoreland Farm School, Newton Rigg; the Agricultural College, Aspatria, Cumberland; the University College of Wales, Aberystwyth; the National Fruit and Cider Institute, Long Ashton, Bristol, and of the Agricultural Committee of the Gloucester County Council attended and gave evidence. On the 12th inst. also the Committee heard evidence from Lord FITZMAURICE. After taking evidence on Thursday, the Committee considered their future procedure during the absence of the chairman at the Hague Conference.

GOOD PRICE FOR COX'S ORANGE PIPPIN APPLE.—Mr. B. G. VAN HEYST, Wyk, a Dutch correspondent, sends us from Holland a cutting from an American publication, *American Fruits*, in which it is said that "The Cox Orange Pippin, an Apple of English origin, sells regularly on the British market at one shilling or 24 cents each. It can be grown successfully in this country." It is a well-known fact that good fruits of this incomparable variety always sell well here, but we are afraid that cultivators have to be content with about one-third of the price stated, although in late winter, in particular seasons, it is possible that samples have been sold at 6d. each, or even more.

ARRANGEMENTS FOR THE CONGRESS OF GERMAN ROSARIANS.—A congress will be opened at Mannheim on Sunday next, June 23, under the auspices of The Society of German Rosarians. A prize will be awarded for the best new Rose, whether shown by a German or foreign exhibitor. The lectures will include one by Prof. Dr. BEHRENS, Karlsruhe, on "Enemies of the Rose and Means for Combating Them"; one by Dr. G. KRUGER, Freiburg, on "Crossing and Hybridising the Rose, according to the most modern methods," illustrated by pictures painted from nature. The Rose exhibition will be opened on June 22.

AT "THE CITY BEAUTIFUL" CONFERENCE, to be held in Liverpool, on June 27 and 28, the following subjects will be discussed. On the morning of the 27th inst., a meeting at the Town Hall will be presided over by the LORD MAYOR, the subject for discussion being "Town and Suburban Planning." In the evening there will be an open meeting, presided over by the VICE-CHANCELLOR of the University, when the subject, "The Beautifying of our Cities," will be discussed. On the morning of the following day, Sir ROBERT HAMPSON will preside at a meeting in the Town Hall for the discussion of "Garden Cities." Prizes have been offered for the best essays written by children in the ele-

mentary schools and by pupil teachers in Liverpool on the subject of "The City Beautiful," and also for the most beautiful private house fronts and for shop and business fronts. The hon. secs. are:—The Rev. Canon MORLEY STEVENSON, Training College, Warrington; Miss HARRISON, Belmont, Storrs, Windermere; and NORMAN WYLD, Esq., The University, Liverpool; from whom all information can be obtained.

INDIA.

CLIMATIC EFFECT ON PLANTS IN THE HIMALAYAS.

No worse practice could be indulged in than the summer pruning of fruit trees here in the Himalayas; it has been tried, and there ensued a regular thicket of undesirable shoots. As further illustrating the vast difference climate makes, I may mention that some years ago I resolved to lift some 900 fruit trees, ranging from three to five years of age, owing to their unprofitableness. They were all grafted on seedling Apple and Pear stocks. The operation was performed in our monsoon—July and August, every tree being taken quite out of the ground, severely root pruned, and put back in the same place. The operation was quite successful, the plants recovered rapidly, made new roots, and by the ensuing spring-time very little check was noticeable. Since that time many fruit trees have been lifted and root pruned in July and August with perfect success.

SCARLET RUNNER BEANS.

This vegetable often becomes a perennial here, and forms very large roots and underground stems something like a Globe Artichoke.

DAHLIAS.

Cuttings of this plant, if dibbled in the soil out-of-doors in the month of July, make roots easily, but the curious point is that the tubers without exception run very long. In no case have I been able to get tubers at all like imported ones; they all become long and of torpedo shape. Old tubers, when three years old, can only be described as monstrous, as they measure some feet in length.

CHRYSANTHEMUMS.

A considerable modification ensues with rapidity even in imported plants. It is with difficulty ordinary cuttings can be got to make roots in this country, but cuttings having attached to them underground rhizomatous-like stems will root freely. This is exactly the form the plants assume; what eventually become shoots have all a rhizomatous underground stem, all of which root freely up to the ground surface, and also in some sorts travel a considerable distance. Practically all plants sold in this country are pieces detached from the parent plant, and in no sense the simple cuttings known in Europe.

MIGNONETTE.

As I write I see before me a small plot of Mignonette, but it is derived from last year's plants, which, while apparently killed outright by the heavy winter snow, have nevertheless grown again, the roots having remained alive.

APRICOT.

The one outstanding fruit of this particular part of the Himalayas is the Apricot; it grows rapidly, forms handsome trees very quickly, fruits enormously, and is the one fruit that never by any chance fails to crop. The fruits ripen for the most part in grand weather before the advent of monsoon. I think this fruit could be sent to Covent Garden Market with advantage to the producer at 15 rupees per maund—that is to say, one pound sterling per maund of 80 lb., say threepence per lb.—wholesale, of course. But, owing to the nature of this fruit, I fear it is quite impracticable, for it would have to be sent a distance of 1,400 miles by railway across the great plain of India down to Bombay, and in May this plain is indescribably hot and dry. *F. W. Sears, Naini Tal, India.*

ODONTOGLOSSUM CRISPUM HEATONENSE.

THE illustration at fig. 167 represents a flower of a very fine blotched variety of *Odontoglossum crispum* raised by Messrs. CHARLESWORTH & Co., Heaton, Bradford, and which was exhibited by them together with others of the batch at the Temple Show on May 28. The flower is white, with a shade of purple showing from the back to the surface. The larger blotches are reddish purple in colour, and the smaller ones dark-rose colour. A fault of many of the home-raised varieties of *O. crispum* obtained from spotted forms, is that in the progeny the colours are often diffused and not distinctly displayed. In this form and others of the Heatonense class the blotching is clear and resembles that of the imported varieties.

may be put down at about £5 per acre, as the following figures from various parts of the British Isles will show:—

ENGLAND AND WALES.—Kent, cost of planting, £6 3s. per acre; Yorkshire, cost of planting and fencing, £4 18s. 9d.; Carnarvonshire, for planting and fencing, £5 2s.

SCOTLAND.—Perthshire, 3,665 acres (planting), £2 10s. per acre; Ross-shire, 3,950 acres (planting), £2 10s.; Inverness-shire, 1,295 acres (planting and fencing), £3 10s.

IRELAND.—Co. Wicklow, 700 acres, £4 13s. 11d.

In connection with these figures, it may be assuring to state that in each case the cost of forming the plantation was carefully noted, and the figures given are strictly correct. The cost of fencing and drainage will often make a dif-

ference of quite £2 per acre, but, where neither has to be engaged in, I have known the work to be carried out at less than £3 per acre. It is somewhat difficult, however, to arrive at an average as to the cost, the difference between notch and pit planting being considerable, as is also the rate of wages paid in different parts of the country. In Scotland especially, what is termed "notch" planting is that generally adopted on rough, exposed, and rocky ground, and the plantations so formed will not cost much more than one-half of such as were pitted. With "notch" planting much smaller, and, consequently, less expensive, plants are used.

The Ross-shire plantations referred to above formed a bleak and barren moorland, which the crofters, who used it as a common for their cattle and sheep, refused to rent at 1s. per acre

per annum. It may be well to remember, too, that all the above-named plantations were formed on bleak, exposed moorlands—the very class of waste lands that are so strongly advocated as the woodlands of the future, and, therefore, the cost of planting may be considered as identical, in both cases about £5 per acre.

This, with £2 5s. for cost of purchase, and 5s. for incidentals, would bring the initial total expenditure to £7 10s. per acre. In my previous article I suggested that altogether 1,000,000 acres should be planted over a period of 25 years, at the rate of 40,000 acres per year, the cost of which would be, roughly, £300,000—a comparatively small sum, it must be admitted, when compared with the £25,000,000 annually expended by this country on supplies brought from abroad.

FINANCIAL RETURNS FROM AFFORESTING WASTE LANDS.

There is ample evidence that land will yield not less than £1 per acre annually for 50 years under a crop of timber, and many instances can be recorded where the standing crop after half a century realised from £50 to £75 per acre. The extensive plantations formed by the late keen arboriculturist, Lord Powerscourt, near Dublin, by the Duke of Athol, of Dunkeld, and Blair-Athol, in Ross-shire, Inverness-shire, but particularly in Aberdeenshire—all of which were formed from 35 years to fully 75 years ago, and the cost of planting carefully noted—are surely sufficient evidence not only of the feasibility of afforesting waste mountain lands, but of the profits which have attended the undertakings, not to speak of the incalculable benefits that have been secured in the way of shelter to the dreary, treeless wastes and the bleak, exposed uplands where the planting was carried out.

Mr. Lewis Miller, of Benachie, Perthshire, tells me that between the years 1870-90 he cut down in Scotland growing timber to the value of over £250,000, and his unique experience with native woods during the past 30 years, and on the basis of prices ruling during that time, justified him in saying that growing Larch, Scotch Fir, and Spruce would give to a proprietor from the time it was planted an average of £1 per acre per annum, apart from the cost of planting. A great many of the plantations he had cut down in Scotland were about 50 years of age, and yielded over £50 per acre, apart from the value of the thinnings taken out of them previous to the time they were finally cut down. To one proprietor in Aberdeenshire he paid over £80,000 for plantations about 50 years of age, and the price on an average worked out at more than £50 per acre. One plantation of Larch in Aberdeenshire, about 70 years of age, yielded £150 per acre; another plantation, all Larch, about 44 years of age, gave over £100 per acre, and these plantations were for the most part grown on pasture or waste land.

Mr. Miller also added that there were millions of acres of pasture land in Scotland, which at present only yielded the proprietors a rental of a few shillings per acre, and which, if planted to a height of 1,500 feet above sea-level, would give them not less than £1 per acre per annum on the average. As far as actual profit is concerned, it will be prudent to assume that for the first 20 years no return whatever will be derived from hillside plantations, the thinnings up to that time doing little more than covering the expense of felling and interest on first cost. For 25 to 35 years an annual return of fully 12s. per acre has been forthcoming, whilst the value of the standing crop at the latter age has been found to be from £50 to £60 per acre. Generally speaking, I do not think that these figures would be too high, as on the estate of Balfour, in Scotland, the Larch on a hillside of 45 years' growth were valued at 20s. each, while a similar valuation was made of the individual trees on two well-known estates in North Wales at the age of 40 years.

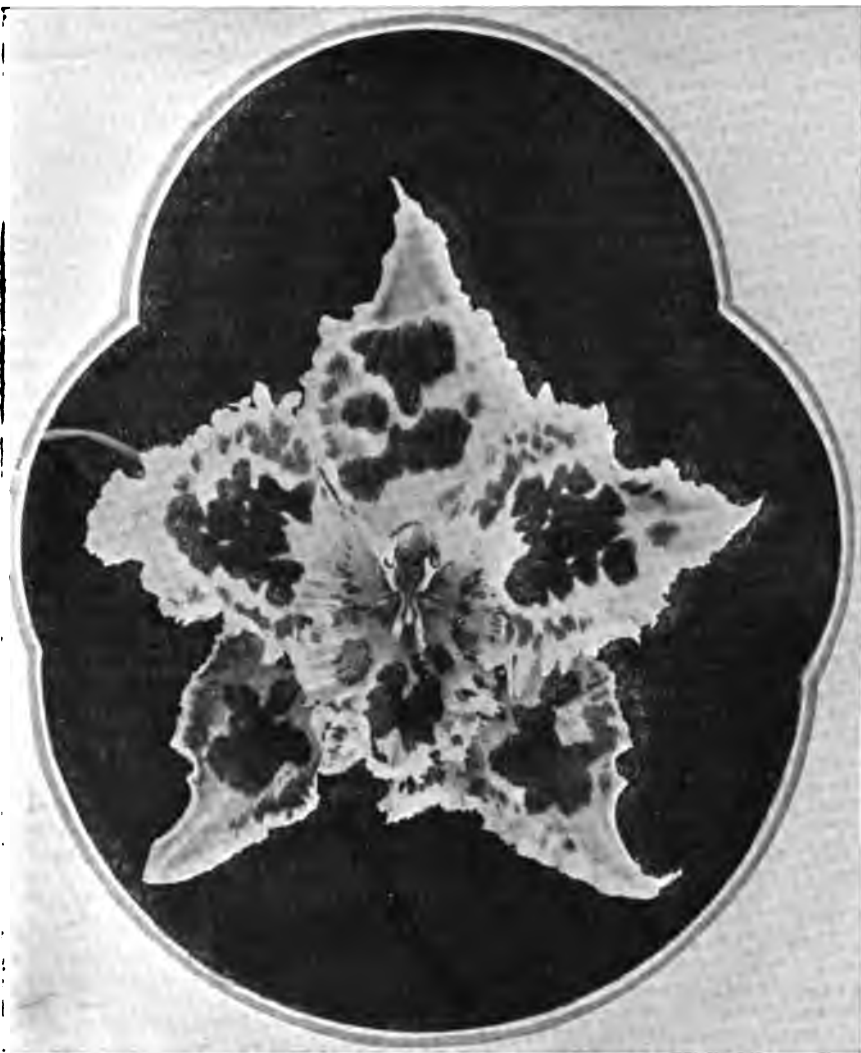


FIG. 167.—ODONTOGLOSSUM CRISPUM HEATONENSE: FLOWER WHITE, WITH PURPLE AND ROSE BLOTCHES.

FORESTRY.

OUR FUTURE TIMBER SUPPLIES.

IN a previous paper (see *Gardeners' Chronicle*, December 15, 1906, p. 401) under this heading I gave a rough outline of the principal timber supplies of the world, with special reference to our own requirements as by far the largest consumers, and at the same time I pointed out the pressing necessity for planting up some of the waste lands of this country as an asset for the future.

The cost of forming plantations would vary greatly with the nature of the soil, whether fencing and drainage are necessary, and the cost of labour in the particular district where planting is to be engaged in.

For all practical purposes, however, the cost

ference of quite £2 per acre, but, where neither has to be engaged in, I have known the work to be carried out at less than £3 per acre. It is somewhat difficult, however, to arrive at an average as to the cost, the difference between notch and pit planting being considerable, as is also the rate of wages paid in different parts of the country. In Scotland especially, what is termed "notch" planting is that generally adopted on rough, exposed, and rocky ground, and the plantations so formed will not cost much more than one-half of such as were pitted. With "notch" planting much smaller, and, consequently, less expensive, plants are used.

The Ross-shire plantations referred to above formed a bleak and barren moorland, which the crofters, who used it as a common for their cattle and sheep, refused to rent at 1s. per acre

The price paid, too, by Mr. Miller for Larch plantations in Scotland, from 40 to 60 years' growth, was never less than £60 per acre. From all these figures it is reasonable to assume that land under plantations yields not less than £1 of rent annually from the time of planting onwards for, say, 60 years, at which date the crop will be ripe for felling, especially Larch, which is the tree above all others for afforesting the waste and mountain lands of Scotland and Wales at least.

After careful computation I have found that the waste lands referred to in this paper were rented at an average price of 2s. 8d. per acre, and when this is compared with the 20s. per acre now returned under a crop of timber, besides the interest on the money originally expended, the value of the lands will be found to have increased about sevenfold.

The profits of timber culture on the Continent would appear to be about on a par with those returned in this country, as Dr. Schlich has told me of some of the German woodlands, and Professor Fisher, in writing to me, said that the woods on the Vosges Mountains pay annually £2 per acre after all expenses have been deducted; while in Belgium the returns are about similar. The Saxon State forests he also mentions as having returned 21s. per acre of net profit during 1903. A. D. Webster.

NOTICES OF BOOKS.

ALPHABET OF GARDENING (ILLUSTRATED).*

This book, as the author tells, is a primer for amateur and professional gardeners, also for the use of students in horticulture. It deals with plant life, soils, manures, plant propagation, hybridising, and the elementary principles of practical and scientific gardening. We may say at once that when the reader has read and digested this *Alphabet of Gardening*, and supplemented the knowledge thus gained by some years of work in a garden under an efficient gardener, he may make his way in the pursuit of gardening. As of necessity in a work so small and cheap, the matter, though trustworthy and accurate, is much condensed. The author has, therefore, afforded the reader a few names, where he has considered it to be needed, of authors whose more elaborate works will prove of much service to him in his work and enable him to gain a knowledge of the how (art) and why (science) of every matter connected with the life and cultivation of plants, and the soils in which the latter are grown. The work contains many illustrations of the various methods of seed sowing, grafting, layering, budding, dis-budding, planting, transplanting, hybridising, and many other operations, all of which will be found useful in assisting the reader to understand the text, which necessarily contains many technical terms.

COLONIAL NOTES.

TOBACCO IN JAMAICA.

THE following reference is made to the cultivation of tobacco in Jamaica in the *World's Commercial Products*:—In Jamaica the cultivation of tobacco has lately received much attention. The soil, climate, and general conditions are favourable in many parts of the island, and the area at present under tobacco is about 400 acres. The tobacco trade has progressed satisfactorily during the past 11 years. Jamaica cigars and cigarettes, which are manufactured at Kingston, have gained an enviable reputation in the market, and the industry may now be considered to be well established. In the opinion of many experts, Jamaica cigars are the finest produced in the British Empire. The exports in 1904-5 were valued at

£22,408, as compared with a value of £19,567 in the preceding year, and these figures are exclusive of the locally-grown tobacco consumed in the island.

BRITISH GUIANA.

THE exports of Rice from British Guiana, during the year ended March 31 last, amounted to 3,474,512 lbs., valued at 89,078 dols., the corresponding figures for the previous year being 29,728 lbs. and 718 dols. (Demerara Argosy.)

A GRENADA MOUNTAIN ESTATE.

DURING the month of January, I accepted the temporary charge of a large estate in this island.

At the time of my stay there, January 21 to March 31, it was the dry season. My regular home is situated near to the sea at St. George's, the capital of the colony, where the effects of the dry weather are immediately felt after the wet season, and Cocoa and other deciduous trees become bare for weeks together. The grass turns brown, fodder is scarce and expensive, and the heat relatively intense. But in my new home, with refreshing mountain streams, shaded valleys, and a deliciously cool atmosphere, the conditions during the dry season are quite the contrary. The trees when the Cocoa crop was gathered were green with their leafage, fodder was plentiful, and Bananas, Plantains, Bread Fruit, the Bread Nut, and many other tropical fruits and food-producing plants were giving plentiful returns. And yet this estate is situated only four to seven miles away from St. George's. Large crayfish were plentiful in the streams.

On the slopes and mountain ridges monkeys roamed in troops in search of fruits. Along the streams the white and blue gaulins, or herons, were occasionally seen flying, or, it may be, were settled in some tree or upon a favourite boulder. Many interesting Orchids, both terrestrial and epiphytal, were seen, also majestic and low-growing Ferns, Mosses, and a host of other interesting plants. The following trees may be mentioned as standing out especially prominent among their fellows in the mountains: *Mimusops globosa* (the bullet-wood), the largest and most valuable of all our timber trees, and *Dacryodes hexandra* (the mountain Gommier), from which a white and fragrant gum is obtained. Woodsmen value this tree and make use of it to light fires at a time when the air is charged with moisture. As an incense it is also utilised in the local Roman Catholic churches. The bole of the tree is used for making "dug-outs," or rough canoes, and the wood when cut up is utilised for roofing houses; *Prestoea trinitensis* (the mountain Cabbage), is a large gregarious Palm. The heart or growing point at the apex of the tree sometimes forms one of the ingredients of our home-made pickles.

Monkeys I found very troublesome. They often destroyed scores of Cocoa pods early in the morning or later in the afternoon after the men had ceased work for the day. One can always tell whether the pods have been bitten by rats or by monkeys. Monkeys bite off the tip of the pod, whereas a rat usually makes a hole on the side. Many fine, well-formed fruits, just ready for picking, are rendered useless by these animals. The seeds are extracted and the acid-flavoured material which covers the seeds is sucked off and then the seed is allowed to fall to the ground. The rat, I believe, eats the seeds. Where these two animals abound no one but those who have direct dealings with a Cocoa estate, situated as this one is, could know of the serious loss the proprietor undergoes from this cause. Of course, the losses can be minimised by employing poisons, or by the aid of traps and guns. Wood ants were another pest, but doses of calomel placed in their nest readily destroyed them.

Under cultivation I found, besides Cocoa and Nutmegs, large plantations of the *Castilloa* rubber tree, some having been planted as tiny seedlings at the end of the preceding year, others had become

fine healthy trees almost fit for bleeding. The Nutmegs were free from insect or vegetable pests, excepting an occasional wood ant's nest, but the Rubber and Cocoa trees did not escape attack. A fungus was working mischief at the base of the Rubber trees, killing them eventually, whilst destructive beetles and black blight were also doing much mischief.

The Cocoa tree was a prey to numberless epiphytes, parasites, and the obnoxious and destructive Cocoa beetle, whose boring grub is a source of continual annoyance. On some estates gangs of boys are engaged to collect the mature insects.

Phthirusa (*Loranthus*) *pyrifolia*, known locally as Captain Bois, furnished an unwelcome parasite. This had to be vigilantly sought for and removed, otherwise the trees would be so injured that little or no crops could be expected, as whole branches would be killed outright by the roots of this plant.

The following plants, in alphabetical order, I also found in more or less abundance upon the Cocoa trees apart from the Captain Bois. These were:—

<i>Anthurium Hookeri</i> , Kunth.—common.	more shaded parts of Cocoa fields upon the tree trunks.
<i>Columnnea Scandens</i> , L.—frequently met with.	<i>Ornithidium coccineum</i> , Salisb.—plentiful.
<i>Caraguata lingulata</i> , Lindl.—plentiful.	<i>O. confertum</i> , Griseb.—a veritable plague on the Cocoa branches.
<i>Catopsis nitida</i> , Baker—found occasionally.	<i>Pleurothallis pruinosa</i> , Lindl.—I regard this among the worst of all the epiphytes, as it is difficult to clean off the trunks and branches if the trees are in the least dry condition.
<i>Dichaea muricata</i> , Lindl.—scarce.	<i>Polystachya luteola</i> , Hook.—met with occasionally.
<i>Epidendrum elongatum</i> , Jacq.—plentiful.	<i>P. foliosa</i> , Rchb. f.—seen here and there.
<i>E. globosum</i> , Sw.—a destructive pest to the trunks of Cocoa trees.	<i>Polypodium pectinatum</i> , L.—common.
<i>E. difforme</i> , Jacq.—rarely seen.	<i>P. piloselloides</i> , L.—a most obnoxious plant upon the Cocoa, owing to its numbers and to the long rhizomes covering the trunks and branches.
<i>E. fragrans</i> , Sw.—very plentiful.	<i>P. repens</i> , L.—plentiful.
<i>E. nocturnum</i> , L.—common.	<i>Peperomia nummulariaefolia</i> , exceedingly plentiful.
<i>E. anceps</i> , Sw.—common.	<i>Trichomanes Kraussii</i> , common.
<i>E. ramosum</i> , Jacq.—very plentiful.	<i>Tænitis angustifolia</i> , R. Br.—great quantities observed.
<i>E. rigidum</i> , Jacq.—rarely seen.	
<i>E. strobiliferum</i> , Rchb. f.—not common.	
<i>Gymnogramme elongata</i> , Hook.—not common on the Cocoa.	
<i>Hymenophyllum polyanthos</i> , Sw.—seldom observed on Cocoa.	
<i>Macromitrium brevipes</i> , C. Müll.—a Moss pest.	
<i>Neckera undulata</i> —a lovely little Moss found in the	

—W. E. Broadway, *The Plant and Seed Nurseries, Grenada, W.I.*

THE HARDY FLOWER BORDER.

PENTSTEMON GLABER.

THE advantage of having free-flowering perennials, normally short-lived, with which to make good the blanks that occur in plant borders after the earlier bulbs have passed their best, will appeal to every gardener. There are many plants that can be reared in a reserve garden that will serve this purpose admirably, and of those that flower well at this season the "Smooth Snake's Head," *Pentstemon glaber*, is a good type. A sowing of new season's seed in August, or the cuttings formed on old plants that have been cut back to induce them to break freely, if inserted in a cold frame, will provide excellent plants for the following season's display, and they may be allowed to remain in the nursery quarters till within six weeks of the time they are due to flower if the soil is retentive and strong. Of the typical *P. glaber* there is not so much to describe as of its varieties *Brandegii* and *roseus*. *Brandegii* has flowers of rich amethystine blue, and practically every plant is a cluster of one-sided spikes, so densely flowered that individual blooms are often misshapen, but they produce an excellent colour effect. If the exhausted spikes are cut away as they become shabby, relays of new ones appear and carry the display over a period of two months, almost without intermission. *Roseus* is of very attractive colouring. It

* By T. W. Sanders, F.L.S. Published by W. H. & L. Collingridge, 148 and 149, Aldersgate Street, E.C. Price 1s. 6d. net.

is deep pink, touched with rose on the outside of the tubes, and it is equally as floriferous as *Brandegii*. In cold and wet soils it will be found an advantage to keep the stock young by frequent propagation. Although really perennial and capable of living five to six years without deterioration, as I have been able to prove, the plants often flower and produce seed so freely that they live for only two years.

EREMURUS TUBERGENII.

ONE of the latest hybrid *Eremuri* is *Tubergen's* variety, a cross between *E. himalaicus* and *E. Bungei*, and a very attractive and handsome plant it is. The root-stock is slender, like *E. himalaicus*, the leaves form a neat funnel of glaucous green that never appear untidy, and which maintains its shapeliness until the leaves wither. They are prac-

are surprisingly easy to intercross. If I may suggest a species for use as a parent when much that has been done in so good, it would be that *E. Olgæ* be more freely used. There is a grace of spike in this species that will ensure freedom from stumpy spikes in its offspring, and its rapid increase by crown division is another desirable factor.

E. TUBERGENI is a beautiful plant, unique in colour and pleasing in its compact habit. It cannot fail to attract, and, so far as my experience shows, is not in any respect difficult to grow. It flowers with the last of the *E. robustus*, three weeks later than *E. himalaicus*. *G. B. M.*

FIR GRANGE, WEYBRIDGE.

IN our issue for March 30 last a note was published on p. 211 which described the spring flowers that were just commencing to bloom

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

HARDY GUNNERAS.—In February, 1902, I found a species of *Gunnera* growing among stunted Beech trees, on a thin stratum of stony debris, which had fallen from the cliffs above on to the ice, near the foot of a glacier descending from the great mountain known as the Tronador, in the main range of the Andes of Chile in latitude 41. The fruit was then ripe, and I succeeded in raising plants from it on my return home. When young they seemed impatient of spring frost, and having no living plants of *G. scabra* or *G. manicata* with which to compare them, I was doubtful as to whether this variety could be looked upon as hardier than those species. Mr. A. C. Bartlett, however, now writes me from Pencarrow, Cornwall, saying that the plants have proved to be much hardier than



FIG. 168.—FIR GRANGE, WEYBRIDGE, THE RESIDENCE OF W. A. BILNEY, ESQ.

(Photo by J. Gregory.)

tically those of *E. Bungei*, much broadened and more rigid. The spike is also a model of neatness. It measures 5 feet in length, and about 2 feet of this is occupied by the inflorescence. The flowers are coloured a pretty shade of chrome yellow, a little stronger than that seen in *Chrysanthemum Mrs. Mease*, but the soft shading is there nevertheless. The habit of the spike is that of a shortened, many-flowered *E. himalaicus*, and the flowers are of the size and shape of *E. Bungei*. With such plants as *Tubergenii*, *Warei*, *Mrs. Reuthe*, *Shelford*, and others available as material to start with, one may expect a host of hybrid *Eremuri* in the near future. They

freely in the gardens at Fir Grange, Weybridge, the residence of W. A. Bilney, Esq. Since the note was published, Mr. Gregory has photographed the ground rockery near to the dwelling house, this being reproduced at fig. 168. Our readers will thus be able to see how interesting and attractive it is. The path over the stepping stones, between which the Thrift and other dwarf plants are growing, is one way by which the more distant parts of the garden may be reached from the house. For further notes on the Fir Grange gardens, see our issues for April 14, 1906, p. 227, and March 30, 1907, p. 198.

the species above mentioned; he says that the young leaves are not cut by the frost in spring, and that they are not so easily blackened in the autumn. Plants which I sent to Poltalloch in Argyllshire, and elsewhere have also grown well. My plant ripened seeds last year which are now germinating, and I shall be glad to send seedlings to anyone who is interested in this genus if they will ask me for them in the autumn. The plant in my garden thrives in an ordinary border on the north side of a high wall, and though it differs somewhat in appearance from *G. scabra*, yet there is so much individual variation among my plants that I do not know how to distinguish it specifically. *H. J. Elwes, Colesborne, near Cheltenham.*

CLEMATIS MONTANA.—There are few hardy climbing plants which, at this season of the year, produce such a bewildering profusion of white flowers as *Clematis montana*. Notwithstanding that the individual flowers are comparatively small, the picturesque effects afforded by its graceful hanging shoots, clothed with innumerable white flowers, more than compensate for their lack in size. A most pleasing effect may be secured with this *Clematis* when associated on the wall of the house with an *Ampelopsis*. The beautiful light-green foliage of the *Ampelopsis* will be found to admirably set off the festoons of white flowers of the *Clematis*. It is also a desirable subject for clambering over unsightly coniferous trees. This *Clematis* will succeed equally well in almost any position, and if at the time of planting it is provided with good soil it will make rapid growth. *F. G. Tutcher*.

BERBERIS BUXIFOLIA.—We should fare ill without the Barberries during the first six months in the year, for we rely on them for a constant succession of fragrant and beautiful blossoms from early January, when *B. Bealii* puts forth its crowded racemes of sulphur yellow till June, when *B. Knightii* and our native *B. vulgaris* are in beauty. Inferior to none, superior to many species, in fragrance and grace, is the box-leaved Barberry, *B. buxifolia*, which used to be called *B. dulcis*—a better name, I think, for the foliage is not very like that of a box, and the epithet *dulcis* (sweet), is peculiarly descriptive not only of the odour when in flower, but of the deliciously sweet berries, like small Grapes, which this plant ripens in abundance. The enclosed photograph [not reproduced—Ed.] does no justice to the display of flowers, because, being yellow, they come out dark. The bush is 18 feet high and 90 feet in circumference. It was planted here about 35 years ago. *Herbert Maxwell, Monreith*.

CEREUS GRANDIFLORUS.—This gorgeous cactaceous plant is both handsome and quaint when in flower. When growing against a wall it curls and twists about like so many snakes. We have it trained along the back wall of a hip-roofed vinery, and in such a position the plants grow and flower very freely. The flowers generally begin to expand at about 6.30 p.m.; by 8.30 p.m. they are fully developed; and by 12 o'clock begin to fade. They will, however, last in a cut state for about 12 hours. Their effect is best when seen by artificial light as they grow upon the plant. When opening they appear to be all on the shiver. In cultivation they require little soil, but plenty of old mortar rubble with it. The plants should be kept moderately dry at the roots, except when they are growing quickly, at which time they need copious supplies of water, and should be syringed twice each day. If it is intended to plant this species out in a border, half the depth should be filled with crocks and potsherds, and care taken to leave no room for more soil than the roots will be likely to permeate. Propagation is easy, as in a warm temperature the plants produce roots from the stem. *W. A. Cook, Leonardslee*.

IMMATURE SEED POTATOS.—Complaint has been made with respect to the huge importations of young Potatos which at this time of year come from the Channel Islands and France, that, because so plentiful, they have been selling at the low price of 1s. 6d. per 40 lbs. That is, indeed, a small return to the growers, let the crop be ever so great, and there is a plentiful crop this season. It is odd to read also that this low figure is due to a combination of merchants and shippers, because combinations or "rings" of that description rather tend to keep prices up. However, there is the fact, whether the grower be satisfied or otherwise, that these young Potatos have been selling retail at 1d. per pound, thus bringing them within the reach of all consumers. A worse class of vegetable food than these unripe and sappy Potatos can hardly be found, for are they not our old acquaintance, the once-famous International Kidney, so beautiful as an exhibition variety, so bad when cooked? The cheapness of these immature tubers offers to all who may desire it an admirable opportunity to test next year the merits or otherwise of immature seed Potatos when planted, as against well-ripened or mature seed Potatos planted beside them at the same time and under the same conditions. Remembering that this old Kidney was raised some 40 years ago at Woodstock, by Mr. Robert Fenn, and that only two or three years

elapsed before it was put into commerce, so great a cropper was the variety, it affords evidence that some varieties at least do not readily deteriorate. Is this long life due to the inherent quality of the flesh of the variety, which is never dry, but always of a close, sappy nature, or because the tubers are generally lifted whilst they are still unripe? In any case, there is now the opportunity to obtain some of them, and, by exposing them to full light and air, induce "greening" and bud formation. By planting these tubers about the middle of July, the resulting crop should consist of tubers of similar size and of the same unripe character to lift and store in October for seed purposes. The test would not be complete, unless some roots of such Potato plants were lifted early in July, the rest being allowed to remain six weeks longer to enable the tubers to fully ripen for the purpose of planting equal quantities of both sets of tubers the following spring side by side and under precisely the same conditions. Important as is this question as to the relative value for spring planting of unripe and fully-ripe Potatos, it is feared that few are testing it. Apart from the purchasing of unripe seed tubers, growers may lift a few roots of any one or more varieties now being grown, doing so, if late ones, at the end of July, saving the tubers, and planting these, with others from the same stocks, which should be allowed to remain in the ground till October to fully ripen. *A. D.*

TRILLIUM GRANDIFLORUM.—Mr. Mallett's paper (see p. 328) on the *Trilliums* is interesting and valuable botanically, but to the ordinary amateur or gardener it does not indicate clearly



FIG. 169.—TRILLIUM GRANDIFLORUM FLOWERING IN SIR HERBERT MAXWELL'S GARDEN.

enough, I think, the immense superiority of *T. grandiflorum* over every other species. Except in botanical collections I do not think any other kind is worth growing. In 19 private gardens out of 20 what is required is a guide to selection, not an aid to collection. The multitude to choose from is so bewildering that the chief difficulty consists in growing the best species, and excluding or rejecting those of inferior beauty. Having plenty of *T. grandiflorum*, both in the garden and in the woods, I do not care to cultivate any other species. I enclose a photograph (see fig. 169) of this beautiful plant in full bloom. *Herbert Maxwell, Monreith*.

EARLY ROSES.—The season has been a good one for early Roses. In the absence of much brilliant sunshine the flowers have maintained better and brighter colours. *Rosa sericea* has been grand, and if cut off in large branches it is most beautiful. *Rosa xanthina* has been brilliant. *Mme. Capucine*, of a shade of coppery-scarlet, excited much admiration. *Rosa rugosa*, "Blanche Coubert," a semi-double variety, with large, snowy-white flowers, is handsome, whether growing in masses or as isolated clumps. It flowers all the summer, is beautifully fragrant, and very suitable for the furnishing of vases. The white and yellow varieties of the Banksian Rose have been grand, and they are useful for the decoration of tables. *W. A. Richardson* and *Marechal Niel* are still very effective. These produce flowers of better quality when growing on their own roots; they are much deeper in colour, and are produced over a much longer period. The *Bride*, *Sunset*, *Anna Olivier*, &c., have all given fine flowers. *W. A. Cook, Leonardslee, Horsham*.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

JUNE 11.—*Present*: Sir J. T. D. Llewelyn, Bart. (in the chair); Dr. M. C. Cooke, Lieut.-Col. D. Prain, Prof. G. Boulger, Rev. W. Wilks, Messrs. J. T. Bennett-Poë, J. Douglas, A. W. Sutton, G. S. Saunders, G. Massee, C. T. Drury, F. J. Baker, G. Gordon, A. Worsley, W. C. Worsdell, E. M. Holmes, H. T. Güssow, and F. J. Chittenden (hon. sec.).

The late Dr. M. T. Masters, F.R.S.—The chairman, Sir J. T. D. LLEWELYN, after referring in sympathetic terms to the loss the Committee had sustained in the death of Dr. MASTERS, who had for so long presided over the deliberations of the Committee, a loss which would be felt not only by them, but by the whole Society, and by the whole horticultural world, moved that a letter of condolence should be sent to his family. Dr. COOKE seconded the motion, and it was carried by all the members of the Committee upstanding in their places.

Genetics.—Mr. CHITTENDEN reported that he had received a communication from Mr. BATESON concerning the proposed meetings for the special consideration of the progress in the study of genetics, brought forward at a recent meeting by Mr. A. WORSLEY. Mr. BATESON expressed himself in sympathy with the scheme. Mr. CHITTENDEN also announced that Mr. BIFFEN would, at the next meeting, show a series of hybrid Sweet Peas to illustrate the Mendelian laws of inheritance.

British plants.—Mr. DRURY showed some plants of *Senecio squalidus*, collected by Mr. C. B. GREEN, of Acton, on the railway bank near Southall, Middlesex. Mr. WORSDELL said he had found it near the same place. The same gentleman sent the *Orchids*, *Aceras anthropophora*, *Orchis Morio*, *Habenaria conopsea*, and *Orchis maculata*, collected near Harefield, in Middlesex.

Fern distribution.—Mr. DRURY also showed, on behalf of Mr. A. DEAN, a Fern, *Adiantum Capillus-Veneris*, enclosed in a bottle, one of many others growing in similar situations (but not all of the same species). A newly-formed garden in Surbiton was edged with these bottles forced neck downwards into the soil, and the spores from which the Ferns had grown must have been present in the soil. As Mr. DRURY remarked, this illustrated well the ubiquity of the spores of Ferns.

Fruit of Carum nigrum, Royle.—Mr. E. M. HOLMES showed the fruit of this Indian plant. The fruit possesses a distinct odour of Cummin.

Spurless Aquilegia.—Mr. EMPSON, of North Walsham, sent flowers of a seedling *Aquilegia* which possessed no spurs. The form is not at all uncommon.

Injured Pistacchio Nuts.—CECIL WHITAKER, Esq., sent a number of *Pistacchio Nuts*, grown in Sicily, which had been rendered completely useless owing to the attacks of some insects.

Malformation of Miltonia vexillaria.—Baron SCHRODER sent a curious spike of this *Orchid*, which bore four apparently double flowers. The spike was produced on a small and not very vigorous plant, taken from a larger plant, which had previously borne only single flowers of the ordinary type.

Spirally-twisted Cedar.—Mr. CHITTENDEN showed photographs and shoots from a Cedar (*Cedrus atlantica*), the trunk and branches of which appeared to be spirally twisted, so that a corkscrew-like groove ran down them. Many of the young shoots upon the tree showed the same curious character. The tree is growing in the garden of Miss SEABROOK, Springfield, Chelmsford, and appears to be unique.

Ribes sanguineum double.—Mr. WORSDELL reported that he had examined the double *Ribes* shown at the last meeting by Sir E. LODGE, and found that each "flower" was not only doubled, but was, at the same time, of a compound structure, representing a rudimentary phase of splitting up into a number of flowers. No fungi or insects could be found in the flowers or twigs, although one or other of these may have occurred at an early stage in the plant's growth. A plant bearing similar flowers occurs at Kew.

LINNEAN SOCIETY.

JUNE 6.—At a general meeting held on the above date, Prof. W. A. Herdman, F.R.S., President, was in the chair.

The President invited Dr. W. Carruthers, F.R.S., the representative of the Society at the recent Linnean celebrations in Sweden, to make a report, upon which Dr. Carruthers gave an account of the proceedings (see our issue for June 1, p. 349).

The General Secretary added a few supplementary remarks, pointing out on a map on the screen the position of the places named, and then showing lantern slides of Lund University, the obelisk at Rashult, the Cathedral at Upsala (three views), and a students' procession in front of Upsala University.

Mr. G. C. DRUCE, F.L.S., showed a specimen of *Orobancha Ritro* from the Channel Islands, which had been named var. *hypochæroides* by Günther von Beck; also fresh specimens of *Bromus interruptus* from N.W. Northants, and *Orchis Simia*, gathered the previous day.

Mr. G. GLOVER exhibited a small portrait of William Kirby, the entomologist, painted on Academy board. The Rev. T. R. R. STEBBING recalled the early history of the celebrated "Introduction to Entomology" from the pens of Kirby and Spence.

JUNE 7.—The President and Council held a reception in the rooms of the Society, in honour of the 200th anniversary of the birth of Linnæus on May 13/23, 1707. Nearly three hundred guests were present, almost one-half being ladies, amongst the guests being His Excellency Count Wrangel, the Swedish Minister, and other members of the Legation, and several Swedish visitors. A special feature of the exhibition was a display of manuscripts, books, personal relics, medals, &c., of the great Swedish naturalist, which belong to the Society, and the beautiful Inlander medallion was surrounded by a wreath of laurel, whilst the Swedish flag formed a background to the small model of Kjellberg's statue, in the library. During the evening Mrs. D. H. SCOTT exhibited her animated photographs of the growth and movements of plants. In the meeting room a series of short lectures was given:—(1) By Prof. POULTON, on "Burchell's Travels and Discoveries"; (2) Prof. HERDMAN, on "Ceylon Pearl Fisheries," prefacing his remarks by a short discourse on Linnæus and the recent celebrations in Sweden, "it being understood that all that we do, and our very presence here this evening is in honour of Linnæus and in commemoration of the foundations he laid in the science we love"; (3) Lieut.-Colonel PRAIN, "The General Interest of Economic Studies"; and (4) Mr. F. J. LEWIS, on "The Plant Remains in British Peat Mosses." These lectures were timed to extend from 9 to 10.45; the conversation closing at 11 o'clock.

BIRMINGHAM BOTANICAL AND HORTICULTURAL.

JUNE 12.—Two extra flower shows were held by this society last summer, and in March this year it was decided to repeat the experiment during the present season. The first of these was held on the above date, the second one being arranged for July 3. The display on the 12th inst. was an excellent one, Orchids being exceedingly well shown by both amateur and trade growers.

Three First-Class Certificates, two Awards of Merit, and one Cultural Commendation were awarded to individual plants—all Orchids.

ORCHIDS.

The Rt. Hon. JOSEPH CHAMBERLAIN, M.P., Highbury, Birmingham (gr. Mr. J. Mackay), sent a beautifully-arranged group in which were some finely-grown and well-flowered varieties of *Cattleya Mossiæ* and *Miltonia vexillaria*. Arranged with these were good plants of *Lælio-Cattleya Canhamiana*, with large, shapely flowers; *L.-C. Aphrodite*, also *Thunia Bensoniæ*, *Phalænopsis Rimestadtiana* and *Odontoglossums*. (Silver-Gilt Medal.)

W. W. BUTLER, Esq., Norfolk Road, Edgbaston (gr. Mr. R. Jones), showed an extensive and interesting collection containing excellent specimens of *Lælio-Cattleya Martinettii*, *L.-C. Fascinator* P. Incess Maud, and *L.-C. Dulcis*;

also *Lælias*, *Phalænopsis Rimestadtiana*, *Trichopilia Wagneri*, *Thunia Winniana*, *Phaius hybrids*, a good selection of *Cattleyas*, and a few very fine *Odontoglossums*. (Silver-Gilt Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, contributed a bright group of large, well-flowered varieties of *Cattleya Mossiæ* and *C. Mendelii*. (Silver Medal.)

Messrs. JAMES CYPHER & SONS, Queen's Road, Cheltenham, sent a group in which were many plants of botanical interest. *Lælio-Cattleyas*, *Odontoglossums* and *Miltonias* formed the principal features of this very instructive group. *Epiphronitis Veitchii*, *Cirrhopetalum Cumingii*, *Masdevallia muscosa* and *Trichopilia marginata* were also noted. (Silver Medal.)

Messrs. A. J. KEELING & SONS, Westgate Hill, Bradford, staged a group consisting principally of *Cattleyas*, *Lælio-Cattleyas* and *Cypripediums*. (Bronze Medal.)

MISCELLANEOUS FLOWERS.

Messrs. JAMES RANDALL & SONS, Shirley, Birmingham, had a splendid lot of flowers of American Carnations and Sweet Peas. (Silver Medal.)

HUGH MITCHELL, Esq., Augustus Road, Edgbaston (gr. Mr. J. Batchelor), displayed a large number of varieties of Pansies on the old-fashioned "show" boards. (Vote of Thanks.)

Mr. ROBERT SYDENHAM, Tenby Street, Birmingham, contributed a pleasing assortment of Sweet Peas, Spanish Irises and Iceland Poppies.

From E. MARTINEAU, Esq., West Hill, Edgbaston (gr. Mr. O. Brasier), came a batch of *Schizanthus* plants bearing a profusion of delicately-coloured flowers. Also forced hardy shrubs and Mignonette. (Bronze Medal.)

Messrs. RICHARD SMITH & CO., Worcester, sent hardy flowers comprising Pæonies, Oriental Poppies, German Irises, &c. (Vote of Thanks.)

From G. H. KENRICK, Esq., Whetstone, Edgbaston (gr. Mr. J. V. Macdonald), came a pretty group of *Miltonia vexillaria* and some remarkably well-flowered *Calceolarias*. (Bronze Medal.)

Messrs. GUNN & SONS, Olton, Birmingham, sent a collection of *Phloxes* arranged in large bunches in tall stands and jars. The most effective varieties were *Lady Napier* (white), *Le Soleil* (pink), and *Perfection* (white, with purple centre). (Bronze Medal.)

FIRST-CLASS CERTIFICATE.

Cattleya Mossiæ Queen of Denmark, from Messrs. HUGH LOW & CO., Enfield. A very pleasing variety, with large, pale, purple sepals and petals; the lip is orange-yellow-coloured and beautifully frilled; throat brown, streaked with purple.

Brasso-Cattleya Thorntonii (*Brassia Digbyana* × *Cattleya Gaskelliana*), from Rt. Hon. JOSEPH CHAMBERLAIN, M.P. The plant exhibited carried large, well-formed, light purple flowers with a broad, deeply-frilled lip. The throat is stained with deeper purple and blotched with yellow.

Lælio-Cattleya Martinettii flavescentis, from Messrs. JAS. CYPHER & SONS. A shapely, fawn-coloured flower with a rich purple lip beautifully fringed.

Odontoglossum perculum, from Messrs. JAS. CYPHER & SONS, Cheltenham. Medium-sized flowers, white, heavily spotted with purple, and marked with yellow on the lip.

A Cultural Commendation was awarded to Mr. J. MACKAY (gr. to Rt. Hon. JOSEPH CHAMBERLAIN, M.P., Highbury), for *Cattleya Mossiæ* growing in a small pot and carrying twenty large flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 13.—Committee present: Messrs. E. Ashworth (Chairman); A. Warburton (Vice-Chairman); J. Cowan, Z. A. Ward, F. K. Sander, W. Stevens, A. J. Keeling, J. Cypher, F. W. Ashton, P. Smith, C. Parker, and P. Weathers (Hon. Sec.).

A. WARBURTON, Esq., Haslingden, staged a fine group in which were many choice forms of *Odontoglossums*, including both hybrids and

species. One of the most remarkable was *O. × ardentissimum* var. *Robsonæ*, a very distinct flower with well-defined markings and a larger area of white than in most forms: the plant was given a First-Class Certificate. A good form of *Cattleya Mossiæ* named "Queen of Denmark" gained an Award of Merit. There were also some good forms of *Miltonia vexillaria*. (Silver-Gilt Medal.)

J. LEEMANN, Esq., Heaton Mersey, exhibited a fine group of plants which included several beautiful *Lælio-Cattleya* hybrids, and a number of choice albino forms of *Cattleya Mossiæ*, the latter being particularly well cultivated. (Silver-Gilt Medal.)

Mr. W. BOLTON, Wilderspool, Warrington, exhibited a magnificent group of *Miltonia vexillaria*, in all about seventy plants, many of which were carrying four flower spikes. *Cattleya Mendelii* var. *compacta*, shown by the same exhibitor, received an Award of Merit. In the group were also half-a-dozen examples of *Cypripedium callosum* var. *Sanderæ*. (Silver-Gilt Medal.)

Mr. D. MCLEOD, Chorlton-cum-Hardy, obtained an Award of Merit for a distinct variety of *Cypripedium Lawrenceanum* called "McLeod's var."

Messrs. CYPHER & SONS, Cheltenham, obtained a Silver Medal for a group containing *Cattleya Mendelii*, *C. Mossiæ* in variety, and good *Odontoglossums*. *Cypripedium* × *Mary Beatrice* var. *magnificum*, shown by this firm, was voted an Award of Merit.

W. THOMPSON, Esq., Stone, gained an Award of Merit for *Cypripedium bellatulum* var. *excellens*.

Messrs. CHARLESWORTH & CO., Bradford, exhibited a small but very choice display of plants, including varieties of *Masdevallia*, some good plants of *Phalænopsis Rimestadtiana*, *Cattleya* × *Empress Frederick*, *Promenæa citrina*, &c. (Silver Medal.) *Zygopetalum Roeblingianum* received an Award of Merit.

Messrs. HUGH LOW & CO., Enfield, Middlesex, staged a collection of good forms of *Cattleya Mendelii*.

G. W. JESSOP, Esq., Rawdon, Leeds, staged a small group of Orchids which contained *Lælias*, *Cattleyas*, some *Odontoglossums*, and the distinct *Promenæa stapelioides*. *Dendrobium Parishii* var. *exquisitum* in this group was given an Award of Merit. (Bronze Medal.)

Mr. A. J. KEELING, Bingley, Yorks., was awarded a Bronze Medal for a small group, principally of *Cypripediums*.

Messrs. ARMSTRONG & BROWN, Tunbridge Wells, exhibited a fine specimen of *Odontoglossum nævium*, which received an Award of Merit and a Cultural Certificate. P. W.

YORKSHIRE GALA.

JUNE 19, 20, 21.—The 49th gala and floral exhibition took place on these dates at York. The weather was unlike summer, nevertheless a large number of exhibits were brought together, and on the first day at least there promised to be a record attendance.

The show, as a whole, brought forth fine specimens of the gardener's cultural skill, but the arrangement—at least, in some of the principal and most highly-prized classes—left much to be desired. For example, a class was provided in the schedule for a number of specimen plants, and, instead of arranging the exhibits under this class together, so that comparison would be easy, some of the plants were staged amongst other classes, and in some instances they thus won other prizes. This was particularly noticed in Class 11, where three competitors were each supposed to stage "six ornamental fine foliage or variegated plants to include two *Codæums* (*Crotons*). Instead, however, of meeting with three groups of six plants each, only one plant, a *Cycas circinalis*, appeared by itself, with the first prize card attached to it. The other plants were probably in the big groups of miscellaneous plants, in Classes 1 and 2. Such conditions should lead to disqualification, as not being in accordance with the terms of the schedule.

GROUPS OF PLANTS.

Class 1 called for a group of miscellaneous plants, in or out of bloom, arranged for effect, and to occupy an area not exceeding 800 square

feet. This was the most important class in the show, and prize money amounting to £71 was offered, attracting six competitors. The 1st prize was won by Mr. JOE S. SHARP, Valley Nurseries, Almondbury, Huddersfield. His group consisted of some well-grown examples of tall *Codiaeums* (Crotons), *Abutilons* interspersed with trained pillar plants of Dorothy Perkins, Hiawatha, and Crimson Rambler Roses. The groundwork was furnished with dwarf plants such as *Caladiums*, Ferns, Marantas, *Gloxinias*, &c., while here and there were specimens of *Lygodiums*, *Pandanus*, and a small central group of *Cattleya Mossiae* and *Phalænopsis amabilis*.

The 2nd prize was awarded to J. PICKERSGILL, Esq. (gr. Mr. J. Donoghue, B.G.A.), for a bright group, in which Roses, *Codiaeums* (Crotons), Orchids, Ferns, *Kalanchoe flammea*, *Ixoras*, *Alocasias*, &c., were conspicuous features. The whole was very effectively set up, and comprised a great variety of really good plants.

JAS. BLACKER, Esq., Thorpe Villas, Selby (gr. Mr. W. Curtis), secured the 3rd prize with standard *Codiaeums* (Crotons), Rambler Roses, *Lilium longiflorum*, *Ixoras*, &c., with foils of *Aralia Veitchii*, *Dracæna Sanderiana*, *Pandanus Veitchii*, &c. The 4th prize was won by Mr. W. A. HOLMES, West End Nurseries, Chesterfield.

Class 2 was for a similar, but smaller, group to occupy an area of not more than 200 sq. feet. There were four competitors. The 1st prize was secured by Mr. W. A. HOLMES, West End Nurseries, Chesterfield. He showed tall *Codiaeums* (Crotons), Bamboos, and *Abutilons*, smaller plants on the ground being *Caladiums*, Ferns, *Ixoras*, *Cineraria*, &c. 2nd, Mr. J. S. SHARP, Huddersfield, who had some good examples of Dorothy Perkins Roses, interspersed with narrow-leaved *Codiaeums* (Crotons). 3rd, Mr. W. VAUSE, 53, Warwick Street, Leamington.

A class was provided for a group of hardy herbaceous and perennial plants with pool of water, &c., to occupy space measuring not more than 30 feet by 10 feet. The 1st prize was won by Messrs. J. BACKHOUSE & SON, York, with a most artistic exhibit of rock and Alpine plants, shrubs and water plants. The effect was charming, for it was enhanced by the artistic blending of the colours, and the natural methods of showing the rocks springing out of the ground.

The 2nd prize was secured by Messrs. W. ARTINDALE & SON, Sheffield, and the 3rd prize by Mr. G. COTTAM.

Specimen plants.—The best single specimen stove plant in bloom was shown by Mr. W. VAUSE in a fine *Anthurium Scherzerianum*.

The class for a single specimen greenhouse plant in bloom attracted eight competitors. The 1st prize was won by Messrs. R. SIMPSON & SON, Selby, for a fine plant of *Erica Cavendishii*; 2nd Mr. J. W. CLARKE, Clifton, York, for a "King of Denmark" *Pelagium*.

Messrs. R. SIMPSON & SON also secured the 1st prize for three ornamental foliage or variegated plants, to include at least one *Codiaeum*, and they won again in the class for three Crotons, distinct, being followed by J. BLACKER, Esq. (gr. W. Curtis).

The best single specimen plant of a *Codiaeum* was shown by Mr. W. VAUSE.

ORCHIDS.

Valuable prizes were offered for Orchids, and seven classes were devoted to these plants. The following are the principal winners:—

The Gold Medal for the best collection of Orchids was awarded to Messrs. CHARLESWORTH & Co., Heaton, Bradford, who staged a small but good group, containing *Odontoglossum ardentissimum* "The Princess," *O. Phoebe* "Queen of Spain," *O. Williamsianum*, *Cattleya Warneri alba*, *C. Whitei*, and *Lælia-Cattleya Phoebe*.

Messrs. J. CYPHER & SONS, Cheltenham, were awarded the 1st prize for a table measuring 12 feet by 5 feet, arranged with Orchids for effect, and the same firm also won the 1st prize for 10 Orchids, a similar award for 6, and the 2nd prize for three specimens of these plants.

Messrs. MOORE, LTD., Rawdon, Leeds, were awarded the 2nd prize for a table of Orchids.

HARDY FLOWERS.

The class for hardy cut flowers produced a very fine display of colour by four competitors. The 1st prize was taken by Messrs. G. GIBSON & Co., Leeming Bar, Bedale; 2nd by Messrs. HARKNESS, Bedale; 3rd, Messrs. G. COTTAM.

Similar exhibits, but in smaller quantities, appeared in other classes.

FRUIT.

In the class for a decorated table of fruit, Lord BARNARD, Barnard Castle, Yorks. (gr. Jas. Tullett), was awarded the 1st prize, receiving 92 points out of a possible 136: Peaches, Nectarines, and Plums were well shown, and the arrangement of flowers and foliage was excellent.

The 2nd prize was won by the Earl of HARRINGTON, Elvaston Castle, Derby (gr. J. Goodacre), with 85 points; and the 3rd prize by Mr. CHAS. E. SIMPSON, York, with 80 points. There were numerous other classes for fruit.

HONORARY EXHIBITS.

The Premier Prize of five guineas to the group considered "best and most attractive in general arrangement, and most calculated to awaken the interest of visitors," was awarded to Mr. GEO. MOUNT, of Canterbury, for a display of Roses, which was universally admired.

Messrs. J. BACKHOUSE & SON displayed *Liliums*, Dwarf Polyantha Roses, *Azalea rosæflora*, Lily of the Valley, Hydrangeas, *Caladiums*, Begonias, Hydrangeas, *Metrosideros*, *Euryas*, &c. (Gold Medal.)

Messrs. R. WALLACE & Co., Colchester, staged a fine exhibit of hardy herbaceous Alpine and water plants. (Silver-Gilt Medal.)

Messrs. SUTTON & SONS, Reading, had a choice exhibit of various kinds of Tomatos, Melons, Cucumbers, and Peas, with a central group of hybrid Nicotianas and *Rhodanthes*. (Gold Medal.)

Messrs. CLIBRAN & Son, Altrincham, exhibited *Pyrethrums*, Carnations, *Clerodendron fallax*, and a new giant purple *Lupinus polyphyllus*.

Messrs. DOBBIE & Co., Rothesay, staged a choice collection of long-spurred Columbines, Sweet Peas, Pansies, and Violas. The same firm also exhibited samples of well-grown Potatos.

Messrs. PEED & SON, West Norwood, occupied a considerable space with a fine collection of *Caladiums*. (Silver-Gilt Medal.)

Messrs. CUTBUSH & SON, Highgate, secured a Gold Medal for a large and artistic group of plants, including *Metrosideros*, Carnations, Rose Mrs. W. Flight, *Calla Elliottiana*, *Verbenas*, &c.

Messrs. RICHARD SMITH & Co., Worcester, had a very fine display of Golden Yews, Clematis, Pæonies, and hardy herbaceous plants. (Silver Medal.)

Messrs. R. H. BATH, LTD., Wisbech, displayed hardy herbaceous plants, tree Carnations, and Roses, with the double *Lobelia Kathleen Maltard*. (Silver-Gilt Medal.)

Messrs. WM. ARTINDALE & SON, Nether Green, Sheffield, contributed an exhibit of tufted Pansies and Violas. (Silver Medal.)

Mr. G. PRINCE, Longworth, Berks., staged a fine display of pillar and climbing Roses in variety.

Messrs. T. S. WARE, Feltham, had a beautiful collection of tuberous Begonias and tree Carnations, the former in the most exquisite shades of colours. (Silver Medal.)

Messrs. JARMAN & Co., Chard, made a conspicuous feature of *Centaureas*, Iceland Poppies, Scabious, &c.

Mr. C. F. WATERS, Deandland Nursery, Balcombe, Sussex, had a fine exhibit of tree Carnations in red, cerise, pink and white, and other colours. (Silver Gilt Medal.)

Mr. C. BREADMORE, Winchester, staged a choice collection of Sweet Peas that was chiefly conspicuous for the new varieties it contained. (Silver Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants, exhibited Water Lilies and general herbaceous plants. (Silver Medal.)

A Gold Medal was awarded as a special prize to Messrs. E. P. DIXON & SON, Huli, for the best

collection of ornamental trees or shrubs and other decorative plants. These consisted of Japanese Maples, *Picea "Kosteri"*, Standard *Euonymus*, *Genistas*, Bay Trees, and a very pretty tricoloured Beech.

Messrs. JAS. BACKHOUSE & SON were also awarded a Gold Medal for a group mainly composed of choice Conifers, Japanese Maples, Standard Buxus, Bays, *Rhododendrons*, and Golden Privet.

A very interesting exhibit of hybrid and cross-bred Irises, and *Hemerocallis* came from Mr. GEO. YELD, Clifton Cottage, York, who was awarded a Certificate of Merit. Some of the Irises were remarkably fine, especially one named "Lord of June."

THE FRUITARIAN HOSPITAL.—The Founders' Day garden party of the Lady Margaret Fruitarian Hospital will be held at Bromley on Saturday, June 29, from 4 to 7 p.m. Mr. LABHSHANKAR LAXMIDAS, who has come from India as a commission to investigate the working of the hospital with the object that similar foundations may be established in India, will give an address. Cards of invitation may be obtained from the Hon. FLORENCE COLBORNE, hon. sec.

THE WEATHER.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending June 15, is furnished from the Meteorological Office:—

GENERAL OBSERVATIONS.

The weather.—The general condition was again very unsettled. More or less rain was experienced daily over a large part of the kingdom, and thunderstorms occurred at some time during the period at nearly every station. They were, however, more prevalent on Sunday than on any other day.

The temperature was high at the commencement of the week, but was subsequently rather low for the time of year. Over nearly the whole of Great Britain the mean temperature for the week was above the average, but in the southern districts and in Ireland it was below the normal. The highest of the maxima—recorded at most stations on Sunday—ranged from 76° in Scotland W. and 75° in several other districts to 65° in Ireland N. The maxima were below 60° at Portland Bill during the whole period, and occasionally below that figure in some other localities. The lowest of the minima, which were registered on rather irregular dates, varied from 42° in Scotland N. to 48° in England E., and to 50° in the English Channel. In Scotland E. (at Balmoral) the lowest reading was 38°.

The mean temperature of the sea.—The water was warmer than during the preceding week at almost every station, the advance being about 2° on the north-east coast of Great Britain and nearly 6° at Margate. The actual figures ranged from 48° at Aberdeen and only slightly higher at some other north-eastern stations, to 55° at Ballyglass and Seaford, 56° at Eastbourne, and 57° at Margate.

The rainfall was largely in excess of the normal over the whole kingdom. On Sunday the fall at Tunbridge Wells and Chester amounted respectively to 1.06 in. and 1.35 in.

The bright sunshine was less than the mean except in England N.E. and E., the percentage of the possible duration ranging from 17 in Scotland W. and below 25 in the "Western Section" generally to 39 in England S., and to 41 in England E.

THE WEATHER IN WEST HERTS.

Week ending June 19.

Cold and Showery.—There have as yet been only two days during the present month which have been in any way unseasonably warm, and on the other hand only seven nights which were unseasonably cold. Four of the latter, however, occurred in the past week, and on the coldest of them the exposed thermometer fell to within 5° of the freezing point. The ground is now decidedly cold for the middle of June, the temperature at a feet deep being 2° colder, and at 1 foot deep 4° colder, than is seasonable. Since the month began rain has fallen on all but four days, but the daily amounts have been as a rule very moderate, so that the total fall only amounts to 1½ inch. Owing to the light falls of rain during the last ten days only a few drops of rain water have come each day through either percolation gauge during the week. The sun shone on an average for 5½ hours a day, which is three-quarters of an hour a day short of the June average. On one day the sun was shining brightly for over 13 hours, but on three others for altogether less than three hours. The winds have again come almost exclusively from some point between south and west, and have been, as a rule, high for the time of year. For no hour, however, did the record exceed 14 miles—direction west. The mean amount of moisture in the air at 3 p.m. exceeded a seasonable quantity for that hour by 4 per cent. *E. M., Berkhamsstead, June 19, 1907.*

MARKETS.

COVENT GARDEN, June 19.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Wednesday, by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—Ed.]

Cut Flowers, &c.: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Azalea Fielderi, per dozen bunches	2 0-8 6	Myosotis, per doz. bunches	1 6-2 0
— mollis, per doz. bunches	4 0-6 0	Narcissus, double, per doz. bchs.	8 0-4 0
Anemones, per doz. bunches	8 0-4 0	— poeticus, per dozen bunches	1 0-2 0
Bouvardia, per doz. bunches	4 0-6 0	Odonatoglossum crispum, per dozen blooms	2 0-2 6
Calla ethiopica, p. dozen	1 6-2 6	Pæonies, per doz. bunches	4 0-8 0
Carnations, per dozen blooms, best American various	1 6-8 0	Pancratium, dz. fls.	8 0-4 0
— smaller, per doz. bunches	9 0-12 0	Pelargonium, show, per doz. bunches	4 0-6 0
— Malmaisons, per dozen blooms	6 0-10 0	— Zonal, double scarlet	4 0-6 0
Cattleyas, per doz. blooms	10 0-12 0	Poppies, Iceland, Joz. bunches	6 0-12 0
Cornflower, per doz. bunches	2 0-8 0	— Oriental	4 0-8 0
Eucharis grandiflora, per doz. blooms	8 0-4 0	Pyrethrums, per dozen bunches	1 6-2 6
Gardenias, per doz. blooms	1 0-2 0	Ranunculus, per dozen bunches	4 0-6 0
Gladiolus, The Bride, dz. bchs.	6 0-9 0	Rhodanthe, per doz. bunches	3 0-4 0
Gypsophila elegans p. dz. bunches	8 0-4 0	Roses, 12 blooms, Niphetos	1 0-3 0
Iris, German, per doz. bunches	4 0-6 0	— Bridesmaid	2 0-3 0
— Spanish, p. dz. bunches	4 0-9 0	— C. Testout	2 0-3 0
Lapagoria alba, dz.	1 0-1 6	— General Jacqueminot	1 0-2 0
Lilac, white, bunch	1 0-8 0	— Maréchal Niel	1 6-3 0
Lilium auratum	2 0-8 0	— Kaiserin A. Victoria	1 6-3 0
— candidum, bch.	1 0-2 0	— Mrs. J. Laing	2 0-4 0
— lancifolium, rubrum and album	1 6-2 0	— C. Mermet	2 0-4 0
— longiflorum	1 6-2 6	— Liberty	2 0-4 0
Lily of the Valley, p. dz. bunches	6 0-9 0	— Mad. Chateau	2 0-3 0
— extra quality	10 0-16 0	Stephanotis, per dozen trusses	8 0-5 0
Marguerites, white, p. dz. bunches	2 0-8 0	Stocks, per dozen bunches	2 0-8 0
— yellow, per doz. bunches	1 6-2 0	Sweet Peas, p. doz. bunches	2 0-5 0
Mignonette, per doz. bunches	8 0-4 0	Tuberose, per doz. blooms	0 4-0 6

Cut Foliage, &c.: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Adiantum cuneatum, per dozen bunches	4 0-6 0	Galax leaves, per dozen bunches	2 0-2 6
Asparagus plumosus, long trails, per doz.	6 0-9 0	Hardy foliage (various), per dozen bunches	8 0-9 0
— medium, bunch	1 6-3 0	Ivy-leaves, bronze	2 0-2 6
— Sprengeri	0 6-1 0	— long trails per bundle	1 6-8 0
Berberis, per doz. bunches	2 0-2 6	— short green, doz. bunches	2 0-3 0
Croton leaves, bch.	1 0-1 6	Moss, per gross	4 0-5 0
Cycas leaves, each	1 6-2 0	Myrtle (English), small-leaved, per dozen bunches	4 0-6 0
Ferns, English, per dozen bunches	2 0-3 0	— French, dozen bunches	1 0-1 6
— French, dozen bunches	2 0-4 0	Smilax, p. dz. trails	1 6-2 6

Plants in Pots, &c.: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Ampelopsis Veitchii, per dozen	6 0-8 0	Erica Cavendishi, per dozen	24 0-36 0
Aralia Sieboldi, dz.	4 0-6 0	— ventricosa, per dozen	18 0-30 0
— larger	9 0-12 0	Eunymus, per dz.	4 0-9 0
Araucaria excelsa, per dozen	12 0-30 0	Ferns, in thumbs, per 100	7 0-10 0
Aspidistras, green, per dozen	18 0-30 0	— in small and large 60's	16 0-25 0
— variegated, dz.	30 0-42 0	— in 48's, per dz.	4 0-10 0
Asparagus plumosus nanus, doz.	9 0-12 0	— in 36's, per dz.	10 0-18 0
— Sprengeri, doz.	9 0-12 0	Ficus elastica, per dozen	9 0-12 0
— tenuislimus, per dozen	9 0-12 0	— repens, per doz.	4 0-6 0
Azalea mollis, each	2 0-3 6	Fuchsias, per doz.	4 0-8 0
Boronia megastigma, per dz.	12 0-30 0	Heliotropium, per dozen	4 0-6 0
— heterophylla	12 0-30 0	Hydrangeas, Thos. Hogg, per doz.	12 0-18 0
Calceolarias yellow	6 0-9 0	— Hortensia, per dozen	8 0-12 0
Callas, per doz.	9 0-12 0	— paniculata, per dozen	12 0-30 0
Clematis, per doz.	8 0-9 0	Kentia Belmoreana, per dozen	12 0-18 0
— in flower	12 0-18 0	— Fosteriana, p. dozen	12 0-21 0
Cocos Weddelliana, per dozen	9 0-18 0	Latania borbonica, per dozen	12 0-18 0
Coleus, per dozen	8 0-5 0	Lilium longiflorum, per dz.	12 0-24 0
Crochus (Kalo-anthes), per doz.	9 0-12 0	— lancifolium, per dozen	12 0-18 0
Croton, per dozen	12 0-30 0		
Cyperus alternifolius, dozen	4 0-5 0		
Cyperus laxus, dz.	4 0-5 0		
Dracenas, per doz.	9 0-24 0		

Plants in Pots, &c.: Average Wholesale Prices (Contd.)

s.d.	s.d.	s.d.	s.d.
Lily of the Valley, per dozen	12 0-18 0	Petunias, single, per dozen	8 0-6 0
Lobelia, per dozen	5 0-6 0	Rhodanthe, per dz.	4 0-6 0
Marguerites, white, per dozen	4 0-8 0	Rhododendrons, per doz.	24 0-36 0
— yellow	12 0-18 0	Roses, H.P.s., per dozen	12 0-24 0
Mignonette, per dz.	5 0-8 0	— Ramblers, each	5 0-21 0
Musk, per dozen	4 0-6 0	Saxifraga pyramidalis, per dozen	12 0-18 0
Pelargonium, Ivy-leaved, Mde. Crousse and Galilee, p. dozen	6 0-8 0	Selaginella, dozen	4 0-6 0
— Zonals, per dz.	4 0-6 0	Spiraea japonica, per dozen	5 0-8 0
— show	6 0-9 0	Stocks (intermediate) per doz.	5 0-6 0
Petunias, double, per dozen	4 0-8 0	Verbena, Miss Willmott, doz.	6 0-9 0

Fruit: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Apples, per box, Tasmanian	8 6-9 0	Grapes, Alicante, per lb.	1 8-1 6
— London Pippins	8 6-9 0	— Gros Maroc, per lb.	1 8-2 0
— Scarlet Pear-mains	6 6-7 6	— English Muscats, per lb.	1 6-4 0
— Scarlet Nonpareils	7 6-8 0	— Belgian Hambros, per lb.	0 8-1 3
— Sturmer Pippins	6 0-7 0	Lemons: Messina, case	8 0-14 0
— French Crabs	6 0-7 0	— Naples, per case	12 0-20 0
— Cox's Orange Pippins	18 0-30 0	— Lychees, per box	1 0 —
— Alexandras	7 6-8 6	Mangoes, per doz.	12 0-24 0
— Prince Alfreds	6 6-7 6	Melons (Guernsey), each	1 0-2 6
— Alfristons	7 0-7 6	— French, Rock, each	8 0-6 0
Australian, box: Monro's Favorite, per box	7 0-9 0	Nectarines (English), per doz.	8 0-12 0
— Roman Beauty	7 0-8 0	Nuts, Cobnuts, per doz.	2 6-3 0
— Cleopatra	7 0-9 0	— Almonds, bags	64 0 —
— Jonathan	10 6-12 0	— Brazil, new, per cwt.	40 0-42 6
— New York Pippins	7 0-9 0	— Barcelona, per bag	82 6 —
— Five Crowns	6 6-7 0	— Cocoa nuts, 100	12 0-17 0
— Cox's Orange Pippins	12 0-16 0	Oranges, per case: Palermo, 100's, box	6 0-6 6
— Rymers	6 0-7 0	— Valencia	16 0-35 0
Apricots (French), per box	1 6-1 9	— Navela	10 0-10 6
— French, cases	8 6-4 6	— Jaffa	12 0-14 0
Bananas, bunch: No. 1	6 0-6 6	— St. Michaels, per box	6 0-10 0
— No. 2	6 0-6 6	— Palermo's, boxes	6 0-8 0
— Extra	7 0-8 0	— Murcia, box	8 0-14 0
— Giants	8 0-10 0	Peaches (English), per dozen	2 0-16 0
— Jamaica	6 0-7 6	— French, p. box	1 0-1 9
— Loose, per dz.	0 9-1 3	Pears (Australian), per bundle of 8 boxes	10 0-13 0
Cherries (English), ½ sieve	7 0-10 0	Plums (French), per box	1 8-1 6
— ¼ sieve	4 0-5 6	Pineapples, each	2 6-5 0
— French, box	1 3-3 0	Strawberries (English), per peck	5 0 —
— French, ½ sieve	4 6-10 6	— per lb.	1 0-2 0
— squares	2 6-2 9	— English, per handle basket	1 6-3 0
Crabapples, per case	8 0-8 6	— French, per crate of 4 baskets	8 0-11 0
Currents (French), black, ½ sieve	8 6-9 0		
Dates (Tunis), doz. boxes	2 6 —		
Figs (Guernsey), per dozen	1 6-4 0		
Gooseberries (English), ½ sieve	2 8-3 0		
Grape Fruit, case	19 0-22 0		
Grapes (English), Hambro's, p. lb.	0 9-1 6		

Vegetables: Average Wholesale Prices.

s.d.	s.d.	s.d.	s.d.
Artichokes (French), per dozen	2 0-2 6	Mushrooms (house), per lb.	0 8-0 10
Asparagus (English), p. bundle	1 3-1 9	— buttons, per lb.	0 10 —
— Montauban, p. bundle	1 6-1 9	— "Broilers" p. lb.	0 6-0 7
— French Giant, per bundle	5 0-6 0	Mustard and Cress, per dozen pun.	1 0-1 6
Beans, Jersey, p. lb.	0 8-0 9	Onions (Lisbon), case	6 6-7 0
— Broad (French) pad	2 0-2 6	— pickling, per bushel	2 0-2 6
— Home-grown, per lb.	0 8-0 9	— Spring, pr. dz. bunches	1 6 —
Beetroot, bushel	1 0 —	— Egyptian, bag	8 0-8 6
Cabbages, per doz.	0 9-1 0	Peas (English), per bushel	8 0-4 6
Cabbage Greens, bag	1 0-1 6	— French, per crate	8 0-4 0
— red, per dozen	2 0 —	— French, per pad	2 6-3 0
Carrots, French pad	2 0-2 6	Parsley, 12 bunches	1 6-2 0
— French, new, per bunch	0 4-0 5	— ½ bushel	1 0-1 6
— per bag, unwashed	5 0-6 0	Potatoes (Canary), per cwt.	7 0-8 0
Cauliflowers, per tally	10 0-12 0	Radishes (Guernsey), per dozen	0 4-0 6
— per dozen	2 0-2 6	Rhubarb (English), natural, per dz.	1 0-1 6
Chicory, per lb.	0 24-0 3	Salsafy, p. dz. bds.	8 6 —
Chow Chow (Sichuan edule), p. dozen	8 0 —	Seakale, doz. pts.	7 0-10 0
Cucumbers, per dz.	2 0-8 0	Spinach, English, per bushel	0 9-1 0
Endive, per dozen	0 9-1 0	Tomatoes: —	
Horseradish, foreign, dz. bnds.	12 0-18 0	— Canary, per bundle	6 0-8 0
Leeks, 12 bundles	1 6 —	— selected, per dozen lbs.	8 6 —
Lettuce (English), Cos, per score	0 4-0 6	— small selected, per dozen lbs.	8 0-8 8
Marrows (English), per dozen	4 0-7 0	Turnips (French), new, per bunch	0 6-0 6
Mint, per dozen bunches	1 6-2 0	Watercress, per doz. bunches	0 4-0 6

REMARKS.—The first arrivals for the season of English Cherries, also Strawberries, from Kent have realised satisfactory prices. Plums in boxes and Black Currants in half sieve baskets have been received from France. Green Gooseberries are arriving in large quantities, but the de-

mand for them is not good, and they are not a popular fruit with the general public. Apples, as is usual during the Strawberry season, are much cheaper. Trade generally is improving. P. L., Covent Garden, Wednesday, June 19, 1907.

POTATOS.

Lincolns, 110s. to 120s.; Yorks, 110s. to 120s.; Scotch, 100s. to 110s.; Dunbars, 110s. to 120s.; Dutch (bag), 4s. to 4s. 6d.; German (bag), 4s. 6d. to 5s.; Jerseys, 7s. to 7s. 6d. per cwt.; St. Malos, 7s.; Teneriffe, 7s. to 8s. Owing to the cold weather there is still a fair demand for old Potatoes, and prices for best tubers have advanced 5s. to 10s. per ton. Trade generally is fair. W. J. C. & S., Covent Garden, June 19, 1907.

COVENT GARDEN FLOWER MARKET.

This morning (Wednesday), salesmen complained of dull trade. Good blooms of Carnation Mrs. T. W. Lawson could be purchased at 1s. per dozen late in the morning, and many flowers of Enchantress, but not the best quality ones, were sold at a very small price. Much the same conditions obtain in the case of Roses. I was offered very good blooms of Bridesmaid at 1s. per dozen; medium quality flowers of the variety Mrs. John Laing were realising 3s. per dozen on Saturday last. Many Spanish Irises are sold at prices which must be disappointing to growers. Iceland Poppies are also cheap compared with their value in former years. Oriental and Shirley Poppies are now of good quality. Lilium longiflorum does not advance in price, and many were unsold at closing time. Tuberose, Stephanotis, and Lapagerias are all well supplied. Herbaceous Pyrethrums are seen in very large quantities. Violets are not now procurable; one grower is marketing a small blue Viola as a substitute, but, unfortunately, it has no perfume. Some pretty varieties of the Cornflower (Centaurea cyanus) are seen; one of a rosy-pink shade is very pleasing.

POT PLANTS.

Supplies of most subjects are more than equal to demands, although a few things are becoming scarce. Lobelia has advanced in price, and Stocks are almost over for the season. Yellow Calceolarias are good. Both the yellow and the white Marguerites are well flowered. On Saturday I saw well-flowered Fuchsias sold in the streets at 4d. each, but this must not be taken as an indication of their ordinary market value. The same vendor was offering good Zonal Pelargoniums in 48's at 3d. each, which would cost at the lowest 4s. per dozen if they were especially ordered. Show varieties of Pelargoniums were offered by this hawk equally cheap, and he had beautiful plants in 48's at 6d. each. This class of business cripples the trade of the ordinary florist, who pays the full market prices for his plants all the year through. Rambler Roses are still very fine. Lady Gay is certainly among the best varieties, but the old Crimson Rambler is still appreciated. Hydrangeas in well-flowered plants are over-plentiful. The variety Thos. Hogg is nearly over, but H. paniculata is now very good. Lilium longiflorum has been over-plentiful. Good Petunias, both double and single-flowered varieties, are procurable. Most growers have large supplies of bedding plants on hand, but much of their stock is now "rough," especially in the case of store boxes. Best Pansies and Mimulus are now over for the season. A. H., Covent Garden, Wednesday, June 19, 1907.

DEBATING SOCIETY.

EGHAM AND DISTRICT GARDENERS'.—On Wednesday, June 5, the members of this society visited the beautiful gardens and pleasure grounds at the Dell, Egham, the residence of Baron Schröder. The members first inspected the glass houses, wherein many rare varieties of Orchids were seen in bloom. The out-of-door features gave much pleasure to the visitors, and especially remarkable was a row of Rose Papa Gontier, the plants being covered with the beautiful pink blossoms. Very gay also were the Rhododendrons T. J. W.

SCHEDULES RECEIVED.

SOUTHAMPTON ROYAL HORTICULTURAL SOCIETY'S summer show to be held on Tuesday and Wednesday, July 2 and 3, in the County Cricket Ground, Southampton; and the annual Carnation show, to be held on the Royal Pier, Southampton, on Friday, July 26.

STOCKPORT AND DISTRICT SOCIETY'S Chrysanthemum, Flower, and Fruit Show, to be held in the Volunteer Armoury, Greek Street, Stockport, on Friday and Saturday, November 15-16, 1907.

READING AND DISTRICT ROSE SOCIETY'S fifth annual exhibition, to be held in Forbury Gardens, Reading, on Wednesday, June 26, 1907.

WINDSOR ROSE SHOW to be held on June 29, at the foot of the wooded slopes in the private grounds around Windsor Castle. The King offers a handsome Silver Challenge Cup, open to all England, for the best collection of Rose blooms.

CATALOGUE RECEIVED.

WILLIAM SYDENHAM, Bolehall, Tamworth — Carnations, Picotees, Chrysanthemums, Sundries, &c.

TRADE NOTICE.

JOHN JEFFERIES & SON, LTD.

This company has been registered with a capital of £12,000 in £10 shares (400 preference). The objects of the company are to take over the business of a nurseryman, seedsman, florist, horticulturist, farmer, &c., carried on at Cirencester, Saddington, and Somerford Keynes, all in Gloucestershire, or elsewhere, by W. J. Jefferies, as John Jefferies & Son. There will be no initial public issue. Registered Office: 1, Castle Street, Cirencester.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

ADIANTUM FERN: *W. S.* The rusty leaves are not diseased, but have merely the condition of age. These old fronds should have been cut off earlier in the season. Encourage the plants to make a more liberal growth.

ARUM LILY DISEASED: *J. A.* The chocolate-coloured spot is caused by *Botrytis cinerea*, a fungus, the growth of which is favoured by excess of moisture and heat. It affected the plant before its removal from the greenhouse. We shall be pleased to have your note.

ASPARAGUS: *G. W.* The plants are attacked by a fungus—*Rhizoctinia*. Plant a new quarter with the vegetable, as far removed as possible from the diseased beds, and use plants from a healthy source. Treat the old beds with permanganate of potash, and do not carry the disease from the old to the new quarter, on your boots.

ASTER DISEASE: *F. E. S. & Co., and E. P. D. & Sons, Ltd.* The seedlings are attacked by a fungus—*Erysiphe cichoracearum*. The plants and the soil should be sprayed every five days, until the disease is checked, with a solution of permanganate of potash diluted with water to a pale rose colour.

CARNATION DISEASED: *Mack.* The plants are affected with the fungus—*Helminthosporium echinulatum*. All diseased leaves should be removed and destroyed by burning. Spraying with potassium sulphide—2 oz. to one gallon of water—checks the disease. Do not wet the foliage with water, but ventilate the structure freely in which the plants are accommodated.

CARNATION SEEDLING: *L. M.* The flower appears to possess little merit at present, but you should cultivate it for a season or more to see if it will improve; good yellow varieties of Carnations are not numerous.

CUCUMBER FAILING AT THE ROOTS: *E. R.* The plant is diseased just at the junction of root and stem. This so-called canker is caused by allowing too much water to settle about the "collar" of the plant. Apply lime or wood ashes around the lower parts of the stem.

CUCUMBER LEAVES: *J. C.* You are right in your assumption; the plants are affected with the "spot" disease. Spray the foliage with some fungicide, such as liver of sulphur dissolved in water, or a rose-red solution of permanganate of potash. It is doubtful, however, if you can arrest the disease by any treatment which would not cause injury to the plants.

CUCUMBERS: *A. B.* It is usual to stop the plant as soon as it has reached the trellis and to train the laterals thinly over the trellis. The lateral growths will need to be thinned out and pinched frequently. Read the notes that appear in these pages from time to time under "Fruits under Glass" in the "Week's Work."

CUCUMBERS CURLED: *F. J. G.* We often receive specimens such as you send. The injury is caused by some check to the growth of the plant, caused perhaps by draughts or sudden chilling of the roots by cold water. The six stamps have been placed in the R.G.O.F. box.

FERNS: *G. M.* The small Ferns have no disease present. The injury has been caused by some check, probably cold.

GOOSEBERRIES INJURED: *G. H.* There is no disease present; the damage has been caused by red spider, which has now disappeared owing to the recent wet weather.

GRAPES DISEASED: *P. J. P. and Anxions.* The injury on your berries is known as the Grape-rot, and is caused by a fungus *Gloeosporium ampelophagum*. Dredge the bunches with a mixture of one part quicklime and two parts of flowers of sulphur. The use of stable manure in the borders favours the disease.

LILY DISEASE: *G. O. P., H. E. E., W. T., G. B., and W. R.* The injury is caused by the Lily mould—*Botrytis cinerea*, a fungus disease which has been much favoured by the wet season. Spray the plants, and the surrounding ground also, with sulphide of potassium, one ounce in three gallons of water.

LINNEAN SOCIETY'S JOURNAL: *H. J. T.* Apply to the secretary of the Linnean Society, Burlington House, Piccadilly, London, W.

MAGGOTS ON BRUSSELS SPROUTS: *L. S.* The soil appears to lack lime, and there is an excess of humus present, which has caused sourness. You might try the effect of watering with lime-water. Bisulphide of carbon may be tried against the pests.

PEACH AND NECTARINE LEAVES DYING: *R. S.* The disease on your trees is known as "silver leaf," and for which, unfortunately, no cure is known. It is favoured by applying too much nitrogenous manure to the soil in which the trees are growing.

PEACHES SPLITTING: *E. R.* There is no fungus disease present to account for the trouble, which has been caused by some cultural defect—probably improper watering of the border during the resting season. See that the border is furnished with a sufficiency of lime, and if it is not, apply some old mortar rubble. We could not possibly name the variety from such imperfect specimens. Send fruits that are well developed and ripe, packed in a box with proper care, and we will endeavour to oblige you.

PEAR-FRUIT: *J. G. B.* The fruits are infested with the grubs of the Pear midge.



FIG. 170.—PROLIFEROUS ROSE.

PROLIFEROUS ROSE: *W. D. & Sons.* By no means uncommon. Many such cases have been figured in these pages, and the subject is treated of in *Masters' Vegetable Teratology*. Owing to some cause which cannot now be determined, the centre of the flower, instead of remaining arrested in its growth, lengthens into a branch.

SHAMROCK: *C. Bros.* The plant you send appears to be *Trifolium repens*. This is regarded by some authorities as the true Shamrock, but others consider *T. minus* to be the correct plant. The question is a much-debated one, and other trifoliate plants, including species of *Oxalis*, have been regarded as the true Shamrock. See Mr. Worthington G. Smith's article, published in these pages, April 7, 1900, p. 222.

TOMATO DISEASED: *S. W. W.* The plants are attacked by a fungus *Macrosporium solani*. There is no known remedy once the fruits are attacked, and the best plan is to destroy the diseased plants; thoroughly sterilise, by burning, the soil in which they were growing, and the interior of the house also by carbolic acid or some other strong fungicide. Do not grow Tomatos in the same structure for a season or more unless unavoidable.

NAMES OF FLOWERS, FRUITS AND PLANTS.—We are anxious to oblige correspondents as far as we consistently can, but they must bear in mind that it is no part of our duty to our subscribers to name either flowers or fruits. Such work entails considerable outlay, both of time and money, and cannot be allowed to disorganise the preparations for the weekly issue, or to encroach upon time required for the conduct of the paper. Correspondents should never send more than six plants or fruits at one time: they should be very careful to pack and label them properly, to give every information as to the county the fruits are grown in, and to send ripe, or nearly ripe, specimens which show the character of the variety. By neglecting these precautions correspondents add greatly to our labour, and run the risk of delay and incorrect determinations. *Correspondents not answered in one issue are requested to be so good as to consult the following numbers.*

PLANTS: *W. H. F.* *Muscari Comosum*.—*Fry's Chocolate Box*. No letter was found. 1, *Tecoma jasminoides*; 2, *Libertia formosa*.—*G. W. 1*, *Polygonum* species; 2, *Saxifraga Cymbalaria*; 3, *Saxifraga marginata*; 4, *Tradescantia virginica*; 5, *Hemerocallis flava*; 6, *Muscari Comosum*.—*J. W.* *Metrosideros floribunda*. The small Grape berries appear to be affected with a fungus disease. Send more specimens when the disease has further developed.—*K. & B.* *Juniperus virginiana*.—*G. W. R.* *Cotoneaster frigida*.—*J. R. 1*, *Tradescantia virginica*, white variety; 2, *Lychnis viscaria*; 3, *Veronica spicata*; 4, *Campanula persicifolia*; 5, *Hemerocallis flava*; 6, *Anchusa italica*.—*H. A. 1*, Send when in flower; 2 and 3, garden forms of *Helianthemum* or Rock Rose; 4, *Saxifraga* species; 5, *Aubrietia deltoidea purpurea*.—*H. H. J. 1*, *Spiraea* species; 2, *Veronica gentianoides*; 3, *Thalictrum adiantifolium*.—*F. G. B. 1*, *Anthericum liliastrium*; 2, *Saxifraga* species; 3, *Helianthemum vulgare*; 4, *Geranium sylvestris*; 5, *Kalmia latifolia*.—*P. & Son.* Flower much withered, but it is probably *Marica Northiana*.—*A. B. 1*, *Weigela rosea*; 2, *Euonymus europæus*; 3, *Spiraea arizetolia*.—*J. L. 1*, *Ulmus campestris variegata*; 2, *Hippophae rhamnoides* (Sea Buckthorn).—*C. W. 1*, *Pentstemon glaber*; 2, *Hoffmannia Ghiesbreghtiana variegata*; 3, *Periploca græca*.—*E. M. L.* *Habenaria bifolia*, the larger variety often called *H. chlorantha*.—*S. B. 1*, *Pellionia Daveauana*; 2, *Fittonia argyoneura*; 3, *Veronica salicifolia*; 4, *Fuchsia procumbens*; 5, *Panicum plicatum*.—*W. D.* *Dendrobium Bensoniae*.—*A. R. 1*, *Dendrobium parcum*; 2, *Dendrobium stuposum*; 3, *Dendrobium crystallinum*.—*E. C. C. D.* *Muehlenbeckia complexa*.—*T. W. C.* Probably *Chirita sinensis*.—*H. S.* We do not undertake to name varieties of Roses; the succulent plant is *Mesembryanthemum edule*.—*C. E. A.* *Saxifraga rotundifolia*.

VINE LEAVES: *J. C.* There seems to be no fungus present, but the leaves have the appearance of having matured before their proper season, and this, we suspect, results from unsatisfactory conditions at the roots. If you have allowed the border to become dry at some period since the vines have started into growth this would be sufficient to account for the trouble.—*G. M.* The damage is caused by the Grape mildew—*Plasmopara viticola*. The fungicide advertised as Lysol should be used on the vines as given in the directions on the bottle.

WARTS ON VINE LEAVES: *J. R.* The excrescences on the leaves are not caused by *Phylloxera* or by fungus disease. They are the result of some cultural defect. The vines have been grown in too much heat and an excess of atmospheric moisture. Ventilate the vinery more freely, but with great care in order that the foliage may not be injured by cold draughts.

WALLFLOWERS: *S. F. & Co.* We have no knowledge of severe cold affecting the colour of Wallflowers, unless the plants were crippled, in which case, of course, the flowers would also be affected.

COMMUNICATIONS RECEIVED.—*W. A. C.* (with thanks)—*M.*—*W. S. S.* (next week)—*J. A. W.*—*H. H.*—*E. R.*—*A. H. S.*—*Johannesburg*—*G. C.*—*H. E. S.*—*V. N. G.*—*F. M. W.*—*H. P.*—*H. A. S.*—*Miss W.*—*R. S.*—*K. S. L.*—*Rubrum*—*H. H. J.*—*T. W. R.*—*P. C.*—*W. J.*—*P. H. R.*—*A. E.*—*E. A. L.*—*P. M. L.*—*McC.*—*W. P.*—*W. H. W.*—*Regular Reader*—*H. C.*—*H. A. P.*—*F. B. A.*—*A. Y.*—*H. W.*—*Prof. Sargent*—*A. D.*—*W. F. W. J.*—*C. T. D.*—*T. G. F.*—*W. S.*—*J. D. G.*—*G. B. M.*—*R. D. W.*—*C. M.*—*A. J. H.*—*H. O. E.*—*Freeman Page*—*J. D. G.*—*Ghys*—*Blois*—*W. G. S.*—*H. C.*—*W. R. C.*—*P. W.*—*F. M.*—*Soc. of German Rosarians*—*W. H.*—*W. B. H.*—*W. A. C.*—*E. M.* (letter has been forwarded)—*C. S. Sargent*.



THE Gardeners' Chronicle

No. 1,070.—SATURDAY, June 29, 1907.

CONTENTS.

Alpine garden, the ...	418	Orchid notes and gleanings—	
Alyssum Mollendorffianum ...	418	Odontoglossums from	
Books, notices of—		Moncreiffe ...	490
Game and Game		Vanda tricolor suavis	490
Covers ...	418	Royal Horticultural	
Bryophyllum calycinum	422	Society's Committees'	
Cypripedium californicum	418	outing ...	428
Drives and paths, the		Saxifraga aizoon rosea	418
construction of ...	419	Societies—	
Fruit prospects in		National Chrysanthemum ...	428
South-east Essex ...	426	Royal Horticultural ...	425
Fruit trees, the summer		Soldiers as gardeners ...	428
pruning of ...	424	Strawberry, Kentish	
Gardeners' Royal Benevolent		Favourite ...	428, 427
institution		Sugar canes, seedling ...	428
festival dinner ...	422	Week's work, the—	
Hippeastrum, Mrs. Carl		Flower garden, the ...	421
Jay ...	426	Fruits under glass ...	421
Hydrangeas in tubs ...	424	Hardy fruit garden ...	421
Iris, American,		Kitchen garden, the ...	420
species and varieties		Orchid houses, the ...	420
of ...	417	Parks and gardens ...	420
Masters, botanical		Plants under glass ...	420
works of the late Dr.	418	Wilson, Mr. E. H., in	
Plough, the turn-wrest	428	China ...	422

ILLUSTRATIONS.

Bryophyllum calycinum (Supplementary Illustration)	
Bryophyllum crenatum	419
Calceolaria, Veitch's Hybrid ...	426
Cypripedium californicum	418
Hippeastrum, Mrs. Carl Jay ...	424

AMERICAN IRISES.

WHILST there is no lack of interest taken in the Irises of the old world, particularly those of the bearded group, other species from the Continent of America are but little known, and so far as cultivation is concerned are as little understood. They all belong to the Apogon (or beardless) group, and the species are remarkable for their great diversity of form and colour, puzzling to the systematist, but a source of delight to the plantsman. He finds in their variable characters just that element of uncertainty and change that gives zest to all pursuits; for every bad form he may get there is a particularly good one as compensation. The Irises indigenous to America, so far as my studies of them show, are more than usually well distributed. A species may spread over several districts and will vary in each district—a rule of "one district one form" prevailing. This character is mainly responsible for such confusion as now exists in the nomenclature of American Irises, and such confusion will continue to exist so long as colour variation in relation to Irises is given such little consideration as it receives at present.

There is now before me a bed of seedlings of *Iris Watsoniana* flowering freely. There are no fewer than 14 distinct varieties in a given 100 plants, and the range of these alone connects *Iris tenax* with *I. versicolor* in an unbroken chain. In other species it is possible to find yellow or blue flowers of the same specific type. Such variation has its disadvantages as well as its advantages, and the best one can do is to accept "species" of American Irises as collections of forms that agree with each other in some important character.

Their value in gardens has never been realised. Some of the species and varieties are charming plants of easy culture that one can recommend as the equal of many Eastern species, and in one or two cases there is a colour scheme as unique as it is beautiful. Their cultivation cannot be described in a few words. There are water plants among them, plants suitable for the flower border, for the cool house, and for the rock garden. There are some that will not thrive in any kind of garden, but live only long enough to perfect a flower that would baffle a clever artist to portray, and then disappear. For these there is but little to be said, but fully three-fourths of the American Irises can easily be reared and grown, and the garden would be considerably the richer if all of these were included within its boundaries. Quite young plants should be used in starting a collection.

SPECIES AND VARIETIES.

I. BRACTEATA.—It is scarcely possible for an Iris to have a more beautiful flower than this, and probably so bad a constitution. It forms a hard, running rhizome bearing a few very slender, sickle-shaped leaves less than half an inch wide, the margins of which are distinctly horny. There is hardly any flower stem, the long tubes serving instead. Three flowers are produced from each rhizome, and they have slender yellow tubes 8 inches long and half enclosed in broad foliaceous bracts. The broadly lanceolate "fall" petals are 4 inches long, the standards equalling these in length, but being only half their width. I have two specimens before me. One is of a greyish-lilac tint, the other is a lovely flower of pale buff-yellow suffused with amber and very elegantly traced with palest lilac on the falls, the lilac lines merging into purple at the bend of the fall and into transparency at its tip. Rarely have I seen a flower so beautiful as this. The plant is of slow growth, requiring a dry and rich soil, and to be grown between boulders on a rocky slope or in some sheltered corner, thrusting the roots as deeply into the soil as they will go. Only very young plants may be transplanted safely.

I. CAROLINIANA.—I have not seen living specimens of this species.

I. CRISTATA.—The little marsh Iris from the south-eastern U.S.A. has long been cultivated. It has running rhizomes that secure for the plant a fresh site every year, broad Pea-green leaves that are an ornamental feature all the summer long, produced in fan-shaped tufts a foot high, and the pretty sky-blue flowers are borne early in June. The flowers are but 4 inches high and 3 inches across, the style crests are daintily fringed, and the golden yellow markings on the falls are very beautiful features. This plant is closely allied to the tender *Iris japonica*. It grows best in wet mud or stony soil overlying mud, with its root-stock a few inches above water level. Once established it will bear frequent submersion of the root-stock, and will often extend its growths to the water's edge. It is an ideal plant for the bog garden and the rock pool.

I. DOUGLASIANA.—This very distinct and attractive species can be grown in any good garden soil. It is a long-lived plant with evergreen leafage of a deep bronze-green in fan-shaped clusters. The flowers average

two from each slightly flexuose stem, and they nestle among the foliage. The tubes are twice the length of the stems, the petals are coloured creamy-white in the specimen before me, heavily suffused with lilac-purple around the creamy, purple-veined signal patch, and the standards and style branches are coloured a beautiful shade of creamy-grey. A very attractive Iris whose flowers average 5 inches in diameter and whose margins everywhere are delightfully frilled and waved. It is very variable. Forms occur which approach a self purple in colour; others are practically all cream coloured with a trace of lilac here and there. A good garden plant that one can heartily recommend.

The variety known as *picturata* is a selection which has a white signal patch similar to that of *Iris tridentata*.

I. FULVA (I. CUPREA).—This old species is in many respects a remarkable plant. Botanically it connects Iris with *Moræa*. Its colouring is a lovely copper-maroon, heavily lined with yellow along the claw. The fall petals are twice the size of the standards, but all agree in their colouring; the style branches alone show a lighter tint. It is a marsh species, delighting to grow with its feet in water, and its rhizomes bedded in mud. The leaves are produced in handsome clusters 2 feet high, and the flower stems overtop these in June, and flower in July. A warm position and liberal supplies of water are very necessary for the plants, and they grow splendidly in some stagnant mudbank that absorbs heat during the day. The stems are markedly flexuose and branch freely, yielding six to eight flowers, each 4 inches across, the spatulate falls suggesting those of *Moræa*. I have seen many flowering specimens, but none showed divergence from the typical copper-maroon. It has been considered tender, but will survive any English winter if well grown. It is a poor plant under the drier conditions of a flower border.

I. HEXAGONA is one of the giants of its race. It has broad leaves and sturdy rhizomes suggestive of *Acorus calamus*. The flower stems are 5 feet high, markedly flexuose, bearing three to four flowers each, coloured a deep sky-blue with orange tracery at the bend of the horizontally poised claw, and averaging 5 inches across the flower. It comes from the Southern States, where it grows in marshes and swamps. It is too tender to withstand our winters unharmed, but may be grown in a cool house, potting it liberally and allowing plenty of room forward of the growing point. The rhizome makes a growth a foot long annually, and as many leaves are produced it is preferable to stand the pots in pans of water throughout summer. Its hexagonal fruits hang by flexible tubes to the flower stem and resemble the fruit of *Passiflora* in size and habit, but not in shape.

The variety *alba* has white flowers with paler signal patches. It is of weak growth compared with the type.

Another variety known as *Lamancei* is a hardy variety that thrives apace in bog earth or by the waterside. It has the running rhizome of the type, but shorter leaves and stems. These latter are markedly flexuose, barely 18 inches high, and bear lovely, blue flowers that are like glorified flowers of *Iris tectorum*, having a similar colour scheme. It is a very beautiful Iris that soon makes giant clumps. *G. B. M.*

(To be continued.)

THE ALPINE GARDEN.

SAXIFRAGA AIZOON ROSEA.

I FIRST made the acquaintance of this very distinct and choice plant in Mr. Farrer's group of Alpines at the Temple Show in 1905. Like other varieties of the aizoon section, this Saxifrage is a free-growing subject, and its flowers provide a pleasing tone of colour that is quite new among encrusted kinds. I am flowering the plant this season for the first time, and am greatly pleased with the erect spray of rose-coloured blossoms. Like the other members of its class, this new-comer will be seen to best advantage when planted in groups. The corymbose inflorescence is nearly 1 foot in height, slightly viscid and glandular; the pedicels are one or two flowered. The purplish colour of the petals is extremely pleasing, and is seen to the best advantage when the plant is grown in full exposure. I regard this as one of the best additions to the genus of recent years. It thrives well in a mixture of sandy loam and finely-broken old mortar. At the recent Temple Show it received an Award of Merit. E. J.

ALYSSUM MÖLLENDORFIANUM.

This small, singularly beautiful Alpine plant has pretty glaucous foliage that much resembles that of *A. argenteum*, but the plant is much dwarfer and more compact in habit than the latter species. The bright-yellow flowers are borne on tough, wiry stems 4 inches in height. The plant is quite hardy and easy of culture, and should be planted in a rich, sandy loam in a sunny position. It should be given frequent waterings in hot, dry weather.

NOTICES OF BOOKS.

GAME AND GAME COVERTS.*

I CANNOT call to mind any book which deals exclusively with game coverts, though numerous articles on the subject have appeared from time to time in horticultural and other journals.

Mr. Simpson is therefore to be congratulated upon giving us a well-written and illustrated book on the subject, though the work is not nearly so comprehensive as could be desired—in the matter, at least, of the various trees and shrubs that have proved themselves of value for game coverts. The formation of game coverts differs so much on various estates—owing mainly to differences in soil and situation—that on no two properties do we find either the same plants in use or similar methods of distribution adopted, and what is rightly objected to in one situation is valuable in another.

Thus, the Bracken is unreservedly condemned by the author, yet some of the best shooting areas I know are woods carpeted with Bracken and contiguous to grazing fields.

Our English coppice woods, too, are invaluable game coverts at almost any age, while thinly-grown Birches and Thorns carpeted with Brambles and native grasses are hard to beat. But it should be remembered that open clearances, not dense, far-reaching masses of covert, are desirable. The remarks regarding the differences between the Austrian and Corsican Pines are good, but with possibly a wider experience of the two forms, I must agree with the late Dr. Masters in merely ranking them as varieties, though Mr. Simpson is quite right in the value of the extreme types for shelter and their immunity from the attacks of game. Contrary to the author's experience, I have always found that in order to thicken the exposed side of a plantation, early and careful thinning is necessary—it is better than the killing-out process by the survival of the fittest, as practised by some gardeners. The evergreen Oak might well be added to the list of shelter-giving trees, while the Dogwood, Sea Buckthorn, Ribes,

Viburnums, and shrubby Thorns are all useful plants for particular situations.

The book, which includes 83 pages, with 16 illustrations, is nicely got up and well printed, and should commend itself to all those who are interested in game and game coverts. A. D. W.

CYPRIPEDIUM CALIFORNICUM.

THERE are seven or eight species of *Cypripedium* hardy enough to be grown in cool and sheltered gardens without protection. Such species as *Cypripedium calceolus*, *C. humile*,



FIG. 171.—CYPRIPEDIUM CALIFORNICUM, A HARDY ORCHID: COLOUR OF FLOWERS, WHITE AND GREEN, WITH PINK BLOTCHES.

C. spectabile, and *C. pubescens* are tolerably well known, but the little, but none the less pretty, *C. californicum* has always been a rare plant. Importation from Western America is attended with difficulty—the long journey proving too much for collected specimens, whilst such old-established plants as we possess are too precious to disturb with a view to propagation. *C. californicum* is a very dainty plant that resembles Orchis in its habit. The root system of a good

specimen is a dense mat of tough fibres 3 square feet in extent, the living roots running just below the surface of the soil. The crowns are clustered, and there are from five to twelve in a cluster. The stems average 18 inches in height and bear six to ten flowers in a stout spike, well leaved in the lower half, but sparsely so above. The sepals are greenish, lanceolate, three-quarters of an inch long; the columns are cupola-shaped, white, with a medium line of green, and the nearly spherical pouches are white, woolly internally and with two pink blotches just below the column. The plant grows wild in the alluvial soil of Californian mountain streams, in sheltered but not shady places; its rooting medium being a mass of wet, vegetable debris, moss, &c., and its root extremities reaching to the water level. It thrives in this country under conditions enjoyed by *Parnassia* and the Bog Pimpernel (*Anagallis tenella*). The best planting season is early in spring. G. B. M.

BOTANICAL WORKS OF THE LATE DR. MASTERS.

(Concluded from page 398.)

THE principal papers on the *Aristolochiaceae* are:—"Remarks on the Structure, Affinities, and Distribution of the Genus *Aristolochia*, with Descriptions of some hitherto Unpublished Species," in the *Journal of the Linnean Society*, 1875, vol. xiv., pp. 487-495; and the monograph of the South American species in the *Flora Brasiliensis*, 1875, vol. iv., pars 2, pp. 77-114, tt. 17-26. The Linnean paper was read on February 6, 1873, though it was not published till April, 1875. Since then little has been added to our knowledge of the order, except additional species. Masters estimated the number of species of *Aristolochia* at about 200, distributed as follows:—

Brazil and Guiana	...	57
Central America, Mexico and Texas	...	29
West Indies	...	23
Northern South America	...	15
Peru	...	5
Bolivia and Paraguay	...	6
North America	...	5
South of Europe and the Levant	...	22
Peninsular India and the Archipelago	...	12
Himalayas	...	4
Australia	...	4
Tropical Africa	...	10
Madagascar and Mauritius	...	5
China and Japan	...	6

At least 50 species have to be added to this total, mostly from tropical Africa, South America, New Guinea, and China. The increase is greatest from China, whence we now have 20 species, and 16 species of the genus *Asarum* are on record from the same country. From the foregoing data it will be seen that *Aristolochia* is spread all over the world, excepting the colder regions. No other genus presents such variety in the size and shape of the flower. *A. Goldiana* has a flower over 2 feet in total length, and one foot in diameter; whilst in *A. nummularifolia* it is only about $\frac{1}{4}$ by $\frac{1}{4}$ of an inch. The flower of *A. trilobata* is like the pitcher of a *Nepenthes*, except that the part corresponding to the operculum has a long tail. In other species it is like a *Masdevallia*, except that the tube is longer. Pollination or fertilisation is effected by insects conveying the pollen. In reference to this Masters says: "I may point out the frequency with which a membranous process pointing downwards and inwards is formed in the flower-tube of certain species of *Aristolochia* between the basal distended portion and the median tubular portion of the perianth. This process has been for the most part overlooked by descriptive authors. . . . It is generally a mere rim; but in other cases it is more highly developed, and is so placed as to prevent the egress of insects which may have entered." In *A. Clematis*, and other species, the narrow tube is furnished inside with deflected hairs, which at first effectually bar the outward pas-

* *Game and Game Coverts*, by John Simpson. Published by Fawson & Brailsford, Sheffield; price 15s.

sage of insects. But, as Hildebrand has shown, these hairs shrivel up later, leaving an open passage; otherwise, cross-fertilisation could not be effected. It is probable that the membrane described by Masters alters its position at some period, and thus allows the going to and fro of insects.

In the same volume of the *Journal* of the Linnean Society, pp. 495-507, tt. 14-16, is a "Monographic Sketch of the Durioneæ" by Masters.

Dr. Masters also contributed to the *Encyclopædia Britannica*, and, going back to 1866, I find that he was one of the principal contributors to that useful work, *The Treasury of*

in cultivation, the elegant *Restio subverticillatus*, Masters, being an exception. This has been in cultivation many years, originally under the name of *Willdenovia teres*. It was first described by Dr. Masters in his "Observations on the Morphology and Anatomy of the Genus *Restio*, Linn., together with an Enumeration of the South African Species," in the *Journal* of the Linnean Society, 1865, vol. viii., pp. 211-254, tt. 14 and 15.

The Restiaceæ are an exceedingly interesting group botanically, being mostly dioicous plants, the two sexes of the same species being sometimes so different in aspect as to have been taken for different genera. Besides a number of

Masters was also author of some elementary books, the chief being *Botany for Beginners* and *Plant Life*, of both of which, it is recorded, Russian, French, and Dutch translations have appeared. He was also editor, or part editor, and author, of the second, third, and fourth editions of Hefnrey's *Elementary Course of Botany*.

Reference has been made to Masters' work on the Malvaceæ. Among the many new species of that order described by him are two of more than ordinary interest, namely, *Gossypium Kirkii* and *G. Stocksii*, wild cotton plants, the former a native of tropical Africa, the latter of Scind.

No one will ever know how much Dr. Masters wrote on practical horticulture or cultivation in the *Gardeners' Chronicle*, but we know that he was joint author with the late Sir Henry Gilbert, or sole author, of certain "Reports of Experiments made in the Gardens of the Royal Horticultural Society at Chiswick in 1869 and 1870 on the Influence of Various Manures on Different Species of Plants." He was also joint author of an elaborate report on the "Results of Experiments on the Mixed Herbage of Permanent Meadow, Conducted for More Than Twenty Years in Succession on the Same Land: Part 2, Botanical Results," in the *Philosophical Transactions* of the Royal Society, 1883, vol. clxxiii., pp. 1,181-1,433.

The foregoing uncritical and somewhat disjointed review of the late Dr. Masters' botanical writings outside of the *Gardeners' Chronicle* is incomplete, but it is sufficient to give an idea of the immense amount and great variety of work he accomplished, and it may be useful for reference.

In conclusion, I should like to put on record in the first person my appreciation of our departed friend, with whom I have been well acquainted ever since 1865, and whom I knew several years previously as an occasional visitor to the Herbarium at Kew. Before my breakdown in health in 1867, and the consequent resignation of the post I held at Kew, I was a budding contributor to the *Gardeners' Chronicle*, and, as soon as I was well enough to resume work, Dr. Masters put all he possibly could in my hands that I was capable of doing. During the many years that I had to live entirely on my pen this kindness was continued, with great liberality in material acknowledgment. But it is not so much my gratitude for benefits received that I wish to express, as my esteem and admiration for the genial man who steered his ship so well and wisely through often-troubled waters. *W. Botting Hemsley.*

THE CONSTRUCTION OF DRIVES AND PATHS.

(Concluded from page 397.)

TREATING the different materials according to their individual merits, a grey basalt or granite makes the best foundations for heavy traffic, but the stone is not always easily obtainable. Blue or red limestones occur plentifully in some districts, and as they contain a good percentage of silica and iron, they also make durable roads.

Grey and yellow limestones are more brittle, and not to be recommended for heavy wear, but will do well for footpaths and light traffic, and have the advantage of setting very quickly, owing to the soft nature of the stone. Shingle is a good material for paths intended for light traffic, but, owing to the roundness of the stones, they will not "set" easily unless mixed with a certain proportion of clay. Firebricks, common bricks, and cinders where obtainable in sufficient quantities are excellent materials for ordinary purposes, and constantly maintain a good dry surface, even in wet weather. Builders' refuse, consisting of broken bricks and other more or less durable materials, may also be used, provided it is well rolled and thoroughly soaked with water.

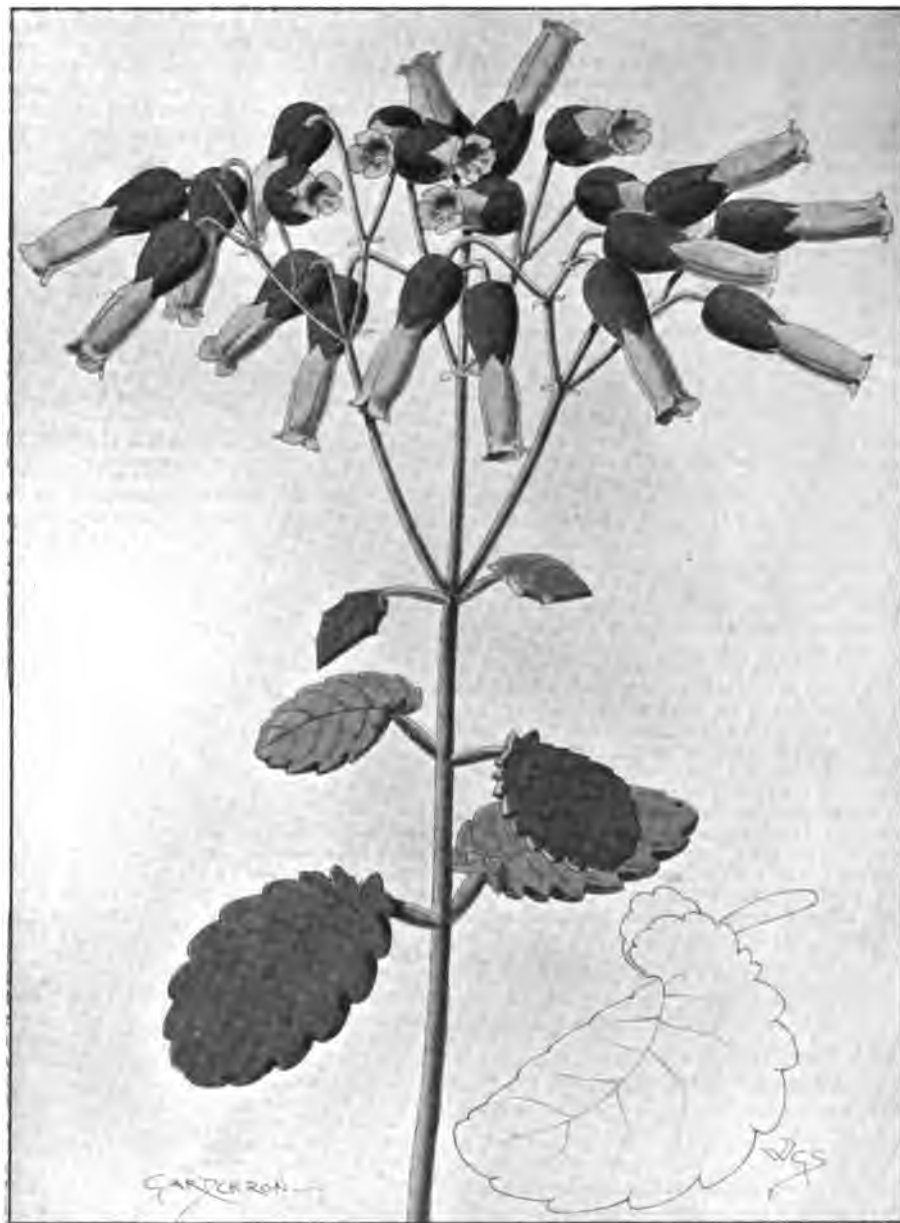


FIG. 172.—*BRYOPHYLLUM CRENATUM*; CALYX PURPLE, PETALS PALE YELLOW.
(See page 422 and Supplementary Illustration.)

Botany, his initials appearing on every other page at least. It may be mentioned in passing that a new edition of this book would be very welcome. I have seen in more than one place, including *Men and Women of the Time*, that Masters was a contributor to De Candolle's *Prodromus*; but it was De Candolle's *Monographia Phanerogamarum* to which he was a contributor, having elaborated the Restiaceæ for that work, vol. i. (1878), pp. 218-398, tt. 1-5. This natural order, comprising 20 genera and about 240 species, is almost entirely confined to South Africa and Australasia. Solitary outliers are recorded from Chili and CochinChina. They are rush and sedge-like plants, almost unknown

smaller contributions to the literature of the order, Dr. Masters was author of the Restiaceæ in Hooker's edition of Harvey's *Genera of South African Plants*, 1868, and in the *Flora Capensis*, vol. vii., pp. 59-149.

Irrespective of the orders which he specially studied, Dr. Masters published a number of small articles on morphology and anatomy, among them:—"Vegetable Morphology: Its History and Present Condition," *Brit. For. Med. Chir. Rev.*, 1862, vol. xxix., pp. 202-218; "On the Morphology and Anatomy of *Philydrum lanuginosum*, Br.," *Journal of Botany*, 1863, vol. i., pp. 105, 106; "On the Anatomy of the Leaf-stalk in *Thalia dealbata*," op. cit., p. 107.

Clay by itself is not to be recommended, but when worked into with a good layer of gravel it will serve its purpose well.

There are other more or less artificial methods of providing a road with a good surface, but these do not come within the scope of this article. The ultimate durability of a drive or path will depend largely upon the care that is taken in laying on the surface. The newly-excavated drive should first be provided with a solid edging of fairly large stones, partly sunk into the ground in order that they may not protrude above the finished surface; a layer of stones, each as nearly as possible 6 inches square, should then be packed carefully and closely with their broadest end downwards over the surface. Similar stone, broken up small enough to pass through a ring 2 inches in diameter, should then be spread over the first layer in such a manner as to completely cover it. The surface should afterwards be well watered, and a good heavy roller brought into play, or if a traction engine be available so much the better. The addition of a coating of sand or fine gravel will serve to make the rolling more effective. A layer of coarse chippings should be carefully worked into the stone foundations, followed by about 2 inches of finer chippings or gravel laid on in two coatings of 1 inch at a time, and well rolled on each occasion. The chippings or other surface material used should first be passed through a screen. After the construction of the drive is finished, it should be reserved from traffic for three or four weeks if possible. When traffic is commenced, it should be frequently diverted from one side of the drive to the other, in order to wear the surface evenly, until it becomes thoroughly set. I have found from experience that these necessary practices are not always willingly carried out, but they may be enforced on drivers of vehicles by placing large stones on the surface of the drive in such a manner as to steer the traffic into the desired direction, moving the stones occasionally to other points as the requirements demand.

A drive intended for light traffic should also be provided with a good foundation of about 6 inches of suitable, porous material, but the layer of larger stones at the bottom may in this case be dispensed with. Gravel or chippings should be added after the manner described, and a good rolling of the surface is essential.

Footpaths may be treated in the same way, if modifications are made according to the material used for their construction. *P. Mayer.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUMS FROM MONCREIFFE.

THE excellent quality and fine culture of the plants of *Odontoglossum crispum* in the gardens of Sir Robert D. Moncreiffe, at Bridge of Earn, N.B., is well shown by a series of flowers sent by his gardener, Mr. A. Common. The white forms are of the very finest type, and among the spotted varieties are several of the *O. crispum* *Trianae* and *O. crispum guttatum* classes. The freshly imported plants developed at Moncreiffe have been prolific in blotched varieties, the best of which is the fine *O. crispum* *Lady Moncreiffe*, for which an Award of Merit was given at the Royal Horticultural Society on May 19, 1903.

VANDA TRICOLOR SUAVIS.

A COMPLETE inflorescence, with all the flowers exhibiting the same peculiar deviation from the normal type, is sent us from the gardens of Monsieur le Comte Henri Visaert de Bocarmé at St. Croix, near Bruges, Belgium. The petals are incorporated with the sepals, and thus the flowers are composed of three enlarged sepals and a labellum, all being so symmetrically arranged that the beauty of the flowers is retained, without any striking appearance of abnormality, the petals having become part of the sepals without the twisting of the parts often seen in such cases. The three segments, which are much broader than usual, are of cream colour, evenly blotched with red-brown, and, as in the normal form the petals and sepals are similarly coloured, the combination of both is the more perfect. The column and side lobes of the lip are white and the front of the lip rose colour.

The Week's Work.

THE KITCHEN GARDEN.

By WILLIAM H. HONESS, Gardener to C. COMBE, Esq., Cobham Park, Surrey.

Celery.—The earliest plants that were pricked out will now be large enough and quite ready for planting out in the trenches. The trenches should be from 4 to 5 feet apart from each other, but directions for preparing these have already been given in a previous calendar. The newly-transplanted plants should be frequently sprinkled overhead with soot, as a check to the "fly" or leaf miner. Lift only a small number of plants at one time, so that the roots will not suffer from long exposure. Apply water to each trench as the work of planting proceeds, and immediately follow this with a sprinkling of soot.

Asparagus.—Cutting should now cease for the season, in order that the plants may acquire strength in the crowns for furnishing a good crop next year. The beds should be thoroughly cleared from all weeds, and be given a final dressing of artificial manure, as previously advised.

Cabbages and Coleworts.—If a sowing of these be made at the present time, the plants will prove most serviceable for the furnishing of vacant ground as the different crops are cleared off, and in autumn the late Cabbages and Coleworts will be valuable.

Lettuce.—Sowings of both the Cos and Cabbage varieties must still be made frequently. If any of the previous plantings should suffer neglect in the matter of watering during hot or dry weather, "bolting" will follow immediately, and the batch be lost.

Cauliflowers.—No vegetable suffers more quickly from dryness at the root than do Cauliflowers, and the complaints that one often hears of buttoning are generally brought about through this cause. Water should be frequently and liberally applied to this crop, and, if possible, let liquid manure be afforded at every alternate watering, applying mulchings also in order to conserve the moisture and maintain the soil cool. It is unfortunate that mulchings are apt to have such an untidy appearance; it is impossible to employ them in some cases where their effects would be most valuable.

Parsley.—For the purpose of providing a good supply during the winter, a sowing might now be made. This crop, like most others, pays the grower well for liberal treatment at the root. A dressing of manure from a spent mushroom is as good as anything, and, as plants from this sowing will be for winter use, it will be well to sow the seeds in a warm and sheltered position. Select the most ornamental or best curled varieties of Parsley, as these are quite as hardy as those which are less ornamental.

Globe Artichokes will now be starting to develop their "chokes." If the plants are growing in very light ground, let them be afforded frequent and copious applications of liquid manure.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence Bart., Burford, Surrey.

Cattleyas and Lælias.—In collections containing Cattleyas, Lælias, and their hybrids, there will usually be some plants that require attention as to re-potting, &c. Therefore it is a good plan to look over these plants (especially those which are rare and valuable) every day, selecting for receiving immediate attention those which have overgrown their pots, and others that are worn-out masses and therefore need rejuvenating, either by re-making them up into small, neat specimens or by placing the pieces singly into suitable-sized pots. These remarks apply particularly to such plants as *Cattleya Mossiae*, *C. Mendelii*, *C. Skinneri*, *C. intermedia*, *C. Schröderæ*, *C. Harrisoniæ*, *C. amethystoglossa*, *Lælio-Cattleya Myra*, *L.-C. G. S. Ball*, *L.-C. Dominiana*, *L.-C. Haroldiana*, *L.-C. eximia*, *L.-C. Fascinator splendens*, &c.; also several of the *Brasso-Cattleya* and *Brasso-Lælia* hybrids, and others. For instructions as to re-potting, composts, &c., readers may refer to the Orchid Calendar for May 18. Many beginners in Orchid culture often find the watering of their plants, especially Cattleyas and Lælias, a difficult performance, not knowing for certain whether they have given too

much or too little, but with careful study and experience they gradually become more confident and accustomed to the work. The inexperienced cultivator, as soon as he observes a slight shrivelling of the pseudo-bulbs of plants which have recently been re-potted, frequently commits an error by thoroughly watering the plant with the idea of making it plump. This it will do for a time, but the old roots, instead of pushing out fresh ones, rapidly decay from excess of moisture, and very often cause the loss of the plant. The safer plan when watering freshly re-potted Cattleyas and Lælias is to keep the compost rather on the dry than on the wet side, and to carefully water the soil around the edge of the pot until each plant has become firmly re-established, when with plenty of new roots present, and the growths progressing favourably, the amount of water may be gradually increased; but no plant should receive water at any time until the whole mass of compost has first become thoroughly dry. Plants which are in large pots, and have considerable material to root in, do not become dry so quickly, or require so much water at one time as those in smaller pots that are well rooted. Wood-lice do much mischief to the young growing roots of these plants, and means must constantly be taken to catch them; large numbers may be trapped with hollowed-out pieces of Potato. Many may be seen on the surface of the soil after the plants have been watered. Afford fresh air to the Cattleya-house whenever this is practicable. If the temperature of the outside atmosphere is 50°, the bottom ventilators should be left wide open, employing enough fire heat at night to keep the atmospheric temperature of the house at 65°.

PUBLIC PARKS AND GARDENS.

By W. W. PETTIGREW, Superintendent of the Parks and Open Spaces in the City of Cardiff.

Bathing in parks.—The provision of bathing facilities in cities usually falls upon a special municipal department, but it often happens that the presence of a lake or large pond in a public pleasure ground makes it possible for the parks department to provide open-air bathing accommodation easily and cheaply. Where this is done a much-appreciated boon is conferred upon the public. Open-air bathing is, as a rule, possible only in parks which are situated some distance from the smoke and dirt of factories. When these favourable conditions do not obtain, the water is better covered with a roof, and it is then scarcely in keeping with the ordinary surroundings of a park. In those parks possessing lakes or ponds suitable for bathing purposes such as those supplied by a constant stream of clean water, very little expense need be incurred in adapting them to the requirements of an open-air bath. A stage, constructed either of wood or concrete, built close to the edge of the water and fitted with plain plank seats, and a few diving boards overhanging deep water are, as a rule, all that is necessary. Dressing-boxes under such circumstances are not usually provided, but the stages are screened at the backs and sides with trees and shrubs, so that from most points of view the bathers are out of sight of other visitors whilst undressing and dressing. For obvious reasons bathing must be restricted to certain parts of the water and to special hours of the day when ornamental waters are put to this use. All-day bathing could hardly be permitted under any circumstances, but more especially where boating is carried on.

In some parks, where natural facilities for bathing do not exist, open-air baths have been constructed to meet the needs of the bathing public. In forming these the excavated material is usually tipped in the form of high mounds all around the site. When these banks are thickly planted with trees and shrubs, the water is hidden from view, and in consequence they can be used all day.

As a matter of course the cost of upkeep of these baths is greater than in the case of a lake used for the same purposes. The most important and usually the most costly matter is the water supply. This must be clean and plentiful, as a much-frequented bath should be emptied and re-filled twice or three times a week. When partly filtered water can be taken in sufficient quantities from a stream, the cost of maintenance need not be great, but if the supply is only obtainable from a water company, it can hardly fail to be high.

Payment for bathing.—The question as to whether or not a charge should be made for the use of the baths or lakes for bathing purposes is a much debated one. The general opinion is that where maintenance charges are not great, bathing for many reasons should be free; where the provision of bathing accommodation results in a heavy outlay, those benefiting by the accommodation should be made to contribute direct to its upkeep.

An attendant necessary.—The use of swimming baths is attended by a decided element of danger, and every precaution must be taken by the responsible officials to guard against accidents. Where the depth of water is more than 4 feet, an expert swimmer should always be in attendance to look after the safety of bathers. Where swimming is allowed in lakes, this gentleman should be on the water in a boat, from which he can throw life-lines, pick up exhausted swimmers, or render any other assistance needed. Eleven years ago, in consequence of two drowning accidents, this method of protecting bathers was adopted in one of our parks, and, although since then over 250,000 persons have used the lake, no further fatality has occurred.

PLANTS UNDER GLASS.

By J. G. WESTON, Gardener to H. J. KING, Esq., Eastwell Park, Kent.

Chironia floribunda.—This extremely ornamental flowering plant is fairly easy to propagate; cuttings made from the young shoots, taken in spring, rooting without any difficulty in a frame in the propagating house. Such rooted cuttings having been potted singly into small 60's (2½-inch pots) will now be ready for repotting. Be careful not to place them in pots that would be too large; those measuring 4 inches or 5 inches in diameter being quite large enough for them during the first season. The roots are very fine, and if over-potted would be liable to suffer from an excess of water. At all times the operation of watering should be carried out with the utmost care, but more especially is this necessary during the winter months, when the supply has to be much restricted. For the present potting, a compost should be used which is of a light nature, and contains turf in only a partially broken condition. If two parts peat, one part loam, and one part leaf-soil are mixed, with a liberal addition of sharp sand to keep the whole porous, this will be a suitable mixture. The older plants should be neatly staked and tied, for they will soon be showing bloom. Younger plants rooted this spring will form a succession later in the season. Whilst in the earlier stages of growth the plants should be kept in a light position in a warm house, but as they become more advanced an intermediate temperature will be found suitable. When in flower, Chironias show to great advantage if staged thinly amongst Adiantum Ferns in a cooler house than that in which they made their growth.

Gloxinias.—Plants in bloom should be placed in a cooler and drier atmosphere, the blooms lasting in good condition longer than if kept in a warm house under the same conditions as for cultivation. Well-flowered plants standing on inverted pots are very effective amongst Ferns or other foliage plants. A few plants if staged in this manner have a more pleasing appearance than a larger quantity grouped by themselves. Re-pot the batches of seedlings as required.

Chrysanthemums.—Get all arrears of potting finished as soon as possible, as plants that become starved and stunted through being pot-bound rarely grow satisfactorily afterwards. Afford stakes to the plants when they have been potted, and fasten the stakes securely to wires in their permanent positions as a protection from wind. Endeavour to allow each plant sufficient room for development, and sufficient to permit a perfect circulation of air between each. If a proper compost is used when potting, no feeding will be required for some time to come. The grower, however, must be guided by the appearance of the plants in determining when stimulants are necessary. Keep a look-out for the first appearance of mildew, and take preventive measures early. If aphides are troublesome, apply tobacco powder frequently, and syringe the plants occasionally in the evening with clear diluted soot water.

FRUITS UNDER GLASS.

By ALEXANDER KIRK, Gardener to J. THOMSON PATON, Esq., Norwood, Alloa, Clackmannanshire.

Early Vineries.—When all the Grapes have been cut from early vines, the foliage should be thoroughly syringed twice daily, unless the weather is dull and wet, when a morning syringing will be sufficient. This practice will help to maintain the vines in health, and will keep red spider at bay, if an abundance of ventilation is afforded both day and night.

Grapes commencing to colour should receive careful attention. They must not be hastened into ripening by an excess of artificial heat, and it should be remembered that the variety Black Hamburgh finishes best when given a fairly cool treatment. If the variety Madresfield Court has finished the stoning of its berries, and they begin to colour, the atmospheric moisture must be reduced in amount. Allow the air to circulate amongst the vines by opening the top and bottom ventilators a little; also circulate a little heat from the hot-water pipes for the same reason, and do not entirely close the ventilators at night-time. Excess of moisture in the atmosphere in which they are growing causes the berries of this variety to split, and scalding in the fruits is also brought about by the same cause. The day temperature of the vinery should be 85°, and the night 70° with a dry atmosphere. Test the borders both inside and outside, and if they are found to be dry, give a good watering with manure water, after which application the vines will probably not require any more moisture at their roots until the bunches are mature.

Late Grapes.—The bunches should be examined and have their berries thinned, so that the fruits which remain may have space to develop to the fullest size. As soon as the variety Lady Downes has finished the stoning of its berries, special treatment must be given to prevent the fruits scalding. Keep the house cool and well ventilated throughout the day-time, open the top and the bottom ventilators slightly at night, and keep the water circulating in the hot-water pipes. The night and day temperatures should vary little—70° at night and 10° higher by day will be suitable. Never entirely close the house for a period of about 15 days.

Strawberries.—It is now time to prepare for next season's plants in pots. The first batch of runners should be pegged down into 3-inch pots. The receptacles should be filled with a mixture of fresh loam and leafmould. Plunge the pots in the Strawberry-beds, and peg the runner into them with wire pegs. Never allow the stolons to become dry. They will soon form roots, after which they must be potted into their fruiting pots. Later batches of runners which have been pegged down can be detached, and be potted at once into their fruiting pots with very good results. Place them in a cold frame, where they will soon root into the fresh compost. Keep the frames close for a few days, and afterwards gradually expose the plants to full sunshine.

THE FLOWER GARDEN.

By A. C. BARTLETT, Gardener to Mrs. FORD, Pencarrow, Cornwall.

Clematis montana.—Now that they have finished flowering, many old plants will need overhauling, or they will become tangled masses, and fail to be as effective as could be desired. Many of the shoots which have flowered should be cut out, and this year's growths be trained in their place. A mulching of good organic manure, or a dressing of some quick-acting artificial manure would be of assistance, and plants which are growing against walls should be afforded a good watering. The summer-flowering Clematis will flower better and longer if they receive some manual assistance.

Pyrethrums and Delphiniums should be trimmed of their inflorescences as soon as the last flowers fade. Lightly prick over the surface soil, and apply some manure. These plants will then yield some useful flowers in the autumn.

Carpet bedding.—Where this style of gardening is still practised, the flower-beds will now require constant attention to make the designs a success. Such beds, if laid out in grass, will require to be edged even more frequently than others, for in their case a hard and fast outline is essential. The plants must be frequently

pinched; or they will not assume that brilliant colouring which is one of the chief attractions of carpet bedding. The Alternantheras especially lose colour if pinching is neglected, because that portion of the plant so shaded becomes greenish and dull.

Intermediate Stocks.—If seeds are sown at the present time, the plants will have a sufficiently long period of growth to enable them to successfully withstand the winter. Sow the seeds thinly on a warm border, where a fine tilth has been prepared. Thin out the seedlings when they are large enough to handle, and plant them in their flowering quarters towards the end of the autumn.

Herbaceous Pæonies.—After these handsome plants have ripened their foliage, there are large blanks left by them in the herbaceous borders. These can be partly furnished if some annuals were transplanted so that they have formed nice balls of soil ready for planting around the crowns of the Pæonies after the leaves have died. The Pæony leaves must not be cut away prematurely, or the quality of next year's flowers will suffer.

Gravel paths.—We have experienced such a wet season that the weed killer applied in the spring has now lost its efficiency, and tiny weeds are showing, which necessitates another application of the weed killer. These compounds, or solutions, are of such a deadly nature that, as previously advised, every precaution should be taken to prevent accidents attending their use.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to LORD CLINTON, Bicton, East Devon.

Summer pruning is a necessity in the case of trained trees, and my system is to perform the work from midsummer day until it is finished. Growth during the present cold and comparatively sunless season is less advanced and not so firm as usual, consequently summer pruning has been deferred for ten days or more. Trees of weakly growth should be lightly pruned, deferring the work in their case until the last. Trees planted against warm walls are naturally more forward than those occupying less congenial quarters, therefore they will claim first attention. Cut back to within 4 inches or so of their origin lateral shoots that are not wanted, leaving any that are required for covering bare spaces or for extension until the winter pruning. To avoid causing a sudden check to the tree, it is advisable to do the upper part first, and the lower half a few days afterwards. Gather up all the prunings daily and burn them, by which means many insect pests will be destroyed. As soon as the wall trees have been pruned, the shoots that are left should be tied or nailed to prevent them breaking.

Budding fruit trees.—Stocks for budding can easily be raised by sowing the stones of Peaches, Apricots, Plums, and Cherries, as well as the pips of the Apple and the Pear. July and early August are the best times to insert buds on fruit trees, choosing dull and showery weather for the operation. Half-ripened wood of medium-sized shoots of the current season provides the best buds. Cut out each bud with some bark and wood attached, 1½ inch long, eventually removing the wood with the haft of the budding knife, and leaving only the pith, which should be full or prominent at the "eye." Previous to cutting out the bud, prepare the stock at the desired height by making an incision an inch long with a cross cut at the top, thus forming a T: the cut should not go deeper than the bark. Raise the edges of the cross cut with the handle of the knife, and insert the bud without damaging it. Bind the stock and bud moderately firm with raffia, commencing to tie at the bottom of the cut, and so completely that no air can reach the wound.

Strawberries.—Runners should be layered early for planting in the open garden in August or early September. Pots 3 inches in diameter are the most convenient, and these should either be stood or plunged in the rows. Fill the pots moderately firm with fresh loam; a few rough pieces of turf-loam at the bottom of the pots will afford the necessary drainage. Peg the runners in the pots, using only one plant from each stolon, and keep the roots well supplied with water. Remove any leaves from the old plants that are likely to unduly shade the plantlets.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the PUBLISHER, 41, Wellington Street, Covent Garden, W.C.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.

APPOINTMENTS FOR JULY.

- TUESDAY, JULY 2—
Scottish Hort. Assoc. meet.
Nat. Amateur Gard. Assoc. meet.
- WEDNESDAY, JULY 3—
Hanley Park Floral Fête (2 days).
Ealing Fl. Sh.
- THURSDAY, JULY 4—
Nat. Rose Soc. Sh. at Botanic Gardens, Regent's Park.
- SATURDAY, JULY 6—
Soc. Franc. d'Hort. de Londres meet.
German Gard. Soc. meet.
- TUESDAY, JULY 9—
Roy. Hort. Soc. Summer Exh. at Holland Park (2 days).
Wolverhampton Fl. Fête (2 days).
Roy. Scottish Arbor. Soc. Exh. in Edinburgh (4 days).
Cambridge Fl. Sh.
- WEDNESDAY, JULY 10—
Tunbridge Wells Fl. Sh.
Croydon Fl. Sh.
Brixton, Streatham and Clapham Hort. Soc. Sh. (provisional).
Bath Rose Sh. (2 days).
Southend-on-Sea Fl. Sh. (2 days).
Newcastle-upon-Tyne Fl. Sh. (2 days).
Lee, Blackheath & District Fl. Sh. (2 days).
Hereford & West of England Rose Sh.
- THURSDAY, JULY 11—
Addlestone, Chertsey and Ottershaw Fl. Sh.
- SATURDAY, JULY 13—Woodbridge Fl. Sh.
- TUESDAY, JULY 16—
Nat. Sweet Pea Soc. Sh., Horticultural Hall, Westminster.
Saltaire Rose Sh.
- WEDNESDAY, JULY 17—
Women's Agric. and Hort. Union Exh. in Bot. Gardens, Regent's Park.
- SATURDAY, JULY 20—German Gard. Soc. meet.
- TUESDAY, JULY 23—
Roy. Hort. Soc. Coms. meet.
Brit. Gard. Assoc. Ex. Council meet.
- WEDNESDAY, JULY 24—
Nat. Carnation Soc. Sh. in R.H.S. Hall, Westminster.
Cardiff and County Fl. Sh. (2 days).
Harpenden Fl. Sh.
- THURSDAY, JULY 25—
Roy. Ulster Agricultural Society's Exh. and Fl. Sh., Balmoral, Belfast (2 days).
- FRIDAY, JULY 26—Roy. Bot. Soc. meet.
- SATURDAY, JULY 27—Lydney Fl. Sh.
- WEDNESDAY, JULY 31—
Midland Carnation & Picotee Soc. Exh. in Birmingham Bot. Gardens (2 days).
Chesterfield Fl. Sh.
Bishop's Stortford Fl. Sh.

AVERAGE MEAN TEMPERATURE for the ensuing week, deduced from observations during the last Fifty Years at Greenwich—61.5°.

ACTUAL TEMPERATURES:—

LONDON.—Wednesday, June 26 (6 P.M.): Max. 70°; Min. 55°.

Gardeners' Chronicle Office, 41, Wellington Street, Covent Garden, London.—Thursday, June 27 (10 A.M.): Bar. 29.9; Temp., 60°; Weather—Overcast.

PROVINCES.—Wednesday, June 26 (6 P.M.): Max. 62°. Lancaster; Min. 52°, Scotland W. coast.

SALES FOR THE ENSUING WEEK.

FRIDAY—

Choice imported and established Orchids from various sources, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.45.

A Letter from China.

Our readers may remember that, at the close of last year, Mr. E. H. Wilson left this country in order to make a third visit to China, this time under the auspices of Professor Sargent, of the Arnold Arboretum, Massachusetts. The accounts of Mr. Wilson's previous visits to China as plant collector for Messrs. James Veitch and Sons, published in these columns in 1905 and last year, met with such high appreciation, we have much pleasure in printing the following extracts from a letter written by Mr. Wilson to

Professor Sargent, and dated Ichang, April 21st, 1907:—

"I returned here on the evening of the 19th inst. after an absence of 18 days. Everything went well on the journey, but the weather was wet for the most part, making travelling uncomfortable. I visited a part of the mountainous region to the west south-west of Ichang—a part where I had not previously been, reaching an altitude of about 7,000 feet. The woods in the mountains were still as dormant as in mid-winter, and snow was lying on the crevices. In the ravines and open valleys vegetation was advancing, and I made a collection of about 180 species of trees and shrubs. Deciduous trees belonging to the Incompletæ were very abundant. I noted several species of Populus, Ulmus, Celtis, Betula, Carpinus, Corylus, and many species of Oaks. I saw many trees of *Fagus longipes*—more than I have met with elsewhere. For the first time, too, I found a living example of *Gymnocladus chinensis*. The specimen was a fair-sized tree, being about 40 feet high. It was growing at an altitude of 3,600 feet.

"The rose-pink-flowered *Magnolia* (referred heretofore to *M. conspicua*) was fairly common at an altitude of between 3,500 and 5,000 feet, and was a beautiful picture, being one mass of flowers.

"In the woods at an altitude of between 3,500 and 5,000 feet the *Sassafras* was abundant. It was in full flower and consequently very conspicuous. There were hundreds of trees, varying in size from 12 to 50 feet in height. I examined the flowers of many of these trees, and they all appeared to be normal and hermaphrodite. However, I am inclined to think that the tree is usually dioecious. The plant has no medicinal value, the wood being simply used for fuel.

"Alongside the mountain paths and elsewhere the Cherry trees made a fine display. I collected specimens of five species. Of shrubs in the mountains, *Hamamelis mollis* was the most beautiful with its wealth of yellow flowers. On the low hills *Loropetalum chinense* was a sight never to be forgotten. The conifers were especially interesting and noteworthy. *Keteleeria Davidiana* was abundant in places at altitudes between 1,500 and 3,500 feet. I gathered cones 8 inches long! But the most interesting discovery of the whole journey was *Pinus Bungeana* growing wild. It was growing on steep, precipitous mountains at an altitude of 2,000 to 4,000 feet. There were many hundreds of trees scattered along for many miles, evidently the remains of a considerable forest. The trees vary considerably in size, and one and all had the characteristic white bark. Many were bent at a sharp angle immediately above the ground, then becoming vertical; few only branched from a point near the ground. The wood is brittle and, therefore, used only for fuel. The situation and conditions under which the trees are growing preclude any possibility of their having been planted. There cannot be a shadow of doubt about their being truly indigenous to this particular locality. If this species (*P. Bungeana*) is also truly wild in the mountains north of Peking, why should not *P. Koraensis* also occur here as was thought to be the case by the late Dr. Masters? If *P. Bungeana* is not truly wild near Peking, then this is the district from whence it has been introduced.

"I collected a Pine new to me on the cliffs at 6,600 feet. It has black, ragged bark, very smooth cones, and two rather short, stiff needles in the sheath.

"*Pinus Armandii* was common on precipices at an altitude of 5,000 to 6,500 feet. This species forms a very graceful tree, but apparently does not attain to any considerable size.

"Amongst the economic problems cleared up during this journey is one upon which I have had considerable doubt, namely, that the seeds of the Varnish tree (*Rhus vernicifera*) yield, when submitted to pressure, an oil used for culinary purposes and for the manufacture of candles. I saw the whole process in operation. I discovered also a new use for the wood-oil (*Aleuritis Fordii*). It is used in the country as an illuminant, and is considered superior to rope-oil for this purpose."

OUR SUPPLEMENTARY ILLUSTRATION to the present issue represents a portion of the inflorescence of *Bryophyllum calycinum*, a fleshy, succulent evergreen shrub, native of India, and allied to *Kalanchoe*, having cream-coloured flowers shaded with pink. It requires a moderate stove temperature in this country, and if the flowers cannot lay claim to being exceptionally showy, the plant is nevertheless interesting, for it possesses the singular property of producing buds from each of the indentations along the margins of the leaves, when the latter are laid on the surface of moist soil. The leaves have even been known to form young plants along their margins after being pressed for preserving in the herbarium. The genus *Bryophyllum* is a small one, and only five good species are enumerated in the *Index Kewensis*. *B. calycinum* with *B. crenatum*, a new species from Madagascar, having purple and yellow flowers, a drawing of which is reproduced at fig. 172, are the best known species in gardens.

ANNUAL FESTIVAL DINNER OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—

The sixty-eighth annual festival dinner of the Gardeners' Royal Benevolent Institution took place on Wednesday evening last at the Hotel Metropole. The chair was occupied by the Hon. WALTER ROTHSCHILD, M.P., who was supported on the right hand by the Rt. Hon. Colonel MARK LOCKWOOD, M.P., and Sir WALTER SMYTHE, Bart., and on the left by Sir EDGAR SPEYER, Bart., and STUART M. SAMUEL, Esq., M.P. A very distinguished company was present, the number exceeding any previous attendance. The toast of "Continued Success to the Gardeners' Royal Benevolent Institution" was proposed by the Hon. WALTER ROTHSCHILD, M.P., and responded to by Mr. HARRY J. VEITCH, treasurer of the Institution and chairman of the Executive Committee. Mr. SAMUEL, M.P., proposed "Horticulture in all its Branches," and Colonel LOCKWOOD, M.P., responded. Other toasts included that of "The Chairman," proposed by Sir EDGAR SPEYER, Bart., and "The Secretary," proposed by Sir SAMUEL BYTHE, Bart. The receipts from donations and subscriptions amounted to nearly £2,500, a larger sum than has ever been raised in connection with the annual festival. The list included an annual subscription of £5 5s. from H.R.H. the PRINCE OF WALES (president), and £105 from the Hon. WALTER ROTHSCHILD, M.P. Mr. HARRY J. VEITCH referred to the recent losses sustained by the Institution, mentioning the names of the late Dr. M. T. MASTERS, vice-president, and HARRY TURNER and GEORGE NORMAN, members of the committee. We shall hope to refer to the proceedings in our next issue.



INFLORESCENCE OF BRYOPHYLLUM CALYCINUM ; COLOUR OF FLOWERS CREAM
SHADED WITH PINK.

THE R.H.S. COMMITTEES HAVE A PLEASANT OUTING.—A party of some 40 members of the various R.H.S. committees, who had accepted Mr. HARRY J. VEITCH's invitation to visit East Burnham Park, travelled to Slough on the morning of the 21st inst., where they were met by Mr. VEITCH, who had provided brakes, in which the visitors were conveyed to the park. In order that the natural beauty of that part of Buckinghamshire might be the better enjoyed, the journey was made via Stoke Park, a very extensive and well-wooded demesne; also by Stoke Poges churchyard, so famous because therein lie the remains of the author of "Gray's Elegy." From thence through country lanes embowered in leafy trees, and with hedges aglow with the wild Rose, the party passed through the ancient village of Farnham Royal and so on to East Burnham Park. Here the greater trimness of the hedgrows, and the trees, shrubs, and park-like expanses, with some glorious masses of colour from climbing Roses lighting up here and there, showed the visitors at once that they were near the home of a distinguished horticulturist. In the pleasure grounds roomy tents had been erected, and in these refreshments were served before an inspection was made of the gardens. The glorious effects of the yellow Austrian Briar were seen in many directions. The climbing Roses on arches, pergolas, or pillars, were much admired. These included such varieties as The Dawson, of soft rose colour; Paul's Carmine Pillar, Electra (white), Mad. Alfred Carriere (a splendid double white), Aglia, and many others. The wild-garden, associated as it is with water and rockwork, also elicited much admiration, and gardeners were continually noting something they saw for the first time. The survey over, luncheon followed, and at its conclusion Mr. W. MARSHALL proposed the healths of Mr. and Mrs. VEITCH, to which Mr. VEITCH responded, and said that he hoped the visit might be regarded as an annual one. A cricket match then took place, the captains being Messrs. W. HOWE and JAMES GIBSON. Mr. HOWE's side batted first, but were very unfortunate, and were all out for 18 runs. Mr. GIBSON's side followed, their captain scoring 37 runs, and the entire side getting 111 runs. Mr. HOWE's side resumed the batting, and Messrs. HOWE and W. POUPART, both then in fine form, scored 34 runs, not out, but the tea bell rang, and play was discontinued. After tea, the party dispersed, many having to travel long distances, but all were delighted with their outing.

SEEDLING SUGAR CANES IN THE WEST INDIES.—From the *Agricultural News* we learn that the cultivation of new seedling sugar canes, as compared with the Bourbon and other varieties hitherto grown in British Guiana and elsewhere in the West Indies, shows considerable progress in recent years. From returns to hand it appears that 28,801 acres were planted in British Guiana in seedling canes in 1906-7. The area in 1905-6 was 14,743 acres, and 1904-5, 9,518 acres. Amongst the more important seedling varieties are the Demerara seedlings, B. 109 and B. 625, while two Barbados seedlings, B. 208 and B. 147, are also largely cultivated. It is pointed out that an Editorial note, which appeared in the *International Sugar Journal*, in May last (pp. 219-220), discussing the "Identity of Seedling Canes in Demerara," and stating that it was "an ascertained fact" that the seedling cane B. 208, cultivated on the well-known Diamond Plantation in Demerara, "was not the original seedling of that variety," is absolutely without foundation. Samples of B. 208 from Diamond Plantation have since been submitted to a critical examination by the Imperial Department of Agriculture for the West Indies, and it is stated that they are identical with the original seedlings of that variety raised at Barbados.

THE NATIONAL ROSE SHOW.—In connection with the Metropolitan Exhibition of the National Rose Society, which will be held on Thursday next, an enthusiastic amateur grower writes us as follows:—"To the lover of Roses all roads will lead to Regent's Park on Thursday, July 4. In the spacious and delightful gardens of the Royal Botanic Society, the National Rose Society will hold the great Rose show of the year. Success is a foregone conclusion. The National Rose Society now numbers well over 2,000 members as against 500 or 600 a few years ago, and the membership is rapidly increasing. Rose cultivation is likewise extending, not only as regards the production of specially fine flowers for the orthodox exhibition stands—and it may be said that in this respect competition is keener than ever—but in respect to the lovely decorative varieties also, which have received deservedly increased attention. On July 4, in addition to the glorious exhibition blooms, we shall see the loveliest forms of decorative Roses, climbing Roses, buttonhole Roses, groups of Roses, and arches, tables, bowls, baskets, and vases decorated with Roses. The proverbial vagaries of an English spring and early summer have excited the usual hopes and fears in the hearts of devotees, but their ardent enthusiasm will doubtless be found to have conquered difficulties, and the show will furnish the choicest results of their unsparing attention. Rose growers are looking forward to an exhibition surpassing any previous display, and one which will be of the greatest interest to every lover of the queen of flowers. The honorary secretary of the Society is Mr. EDWARD MAWLEY, Rose Bank, Berkhamsted, from whom full particulars may be obtained in regard to the show, or the National Rose Society."

SOLDIERS AS GARDENERS.—Colchester being one of the most important military stations in Britain the War Office owns a large area of land in the district. It was, therefore, considered by those in authority that some of it might be utilised to interest the soldiers in practical horticulture. The proposal originated in conjunction with a scheme for the technical instruction of soldiers, and in the hope that the knowledge gained would be useful to them after leaving the colours. Towards this end a contribution was made by the Army Council, such contribution being utilised for making a small grant to each of the original applicants for allotments to aid them in procuring seeds, erecting the necessary fences, and for the payment of an instructor, &c. Over 100 non-commissioned officers and privates applied for allotments, and at present 97 plots are under cultivation. Each plot is 1-16th of an acre, for which the sum of sixpence per month is required as rent from the men. Each cultivator is supplied with what manure is necessary, and is allowed the use of garden tools, and original applicants were given grants of money to purchase seeds, &c. A capable local gardener devotes a part of two days in each week to instructing the men by practical demonstration. Cultivation of the plots commenced on March 1, and on June 22 the plots were judged by Mr. O. G. ORPEN, Chairman of the Colchester Horticultural Society, and Mr. WM. CURTHERSON, J.P., of Messrs. DOBBIE & Co., Rothesay and Marks Tey. Prizes to the number of 31 were awarded, amounting to nearly £5. They were scheduled according to the number of plots taken up by individual corps, and championship prizes were also awarded to the best of the plots taken collectively. In all the plots, writes a correspondent, Potatoes are a leading feature, and with few exceptions they look remarkably well, some of the growers already lifting their early varieties. Between the lines of Potatoes in nearly every instance winter Greens have already been planted. Peas are grown on all the plots, and they have

been sown with due regard to succession. Broad Beans, Runners and Kidney Beans are very popular. The following is a list of the crops grown on one which might be called an average plot: Peas, Potatoes, Cabbages, Beans (Broad, Runner and Kidney), Parsnips, Turnips, Beet, Carrots, Lettuces, Parsley, Tomatoes, Onions, Shallots and Celery. Some of the plots have a few flowers, such as Sweet Peas, Poppies and Nasturtiums. The general condition of the plots as regards cleanliness and neatness is remarkable, and it was impossible to find a weed in many of them on June 22. The produce is the absolute property of the cultivator. In pointing up the plots for prizes the judges had some difficulty in making their awards; the general condition of the best plots being very even and the whole testifying to the great interest taken in the work by the men. The following cultivators were awarded the championship prizes: 1st, Sergt. HADLEY, King's Own Regt.; 2nd, Pte. W. CLARKE, Queen's Regt.; 3rd, S.Q.M.S. CHISHOLM, A.P.C.; 4th, Sergt. WHITE, 2nd Northampton Regt.; 5th, Pte. VINCENT, 2nd Northampton Regt.; 6th, Q.M.S. CLARKE, R.E.; 7th, Pte. T. NEW, The Queen's Regt.; 8th, Sergt. SMITH, A.P.C.

THE HORTICULTURAL SOCIETY OF FRANKFORT-ON-THAINE.—It is recorded in the Proceedings of this Society that the commission for the care of plants by children in the schools distributed 8,340 plants amongst the scholars in ten schools. The town gardens contributed 1,000 plants.

THE YORKSHIRE GALA.—Messrs. J. Backhouse & Son, Ltd., write us as follows:—"The premier award for the best trade exhibit in the show was given to us, and the special premier award for Roses was given to Mr. Mount. From your report, it would appear that Mr. Mount was awarded the premier prize." Our representative informs us that at the time his notes were taken the only premier award mentioned in the schedule had been awarded to Mr. Mount, but we are glad to publish this additional information.

Publications Received.—*Figs and How to Grow Them.* Hugh Low & Co., Royal Nurseries, Bush Hill Park, Middlesex.

HOME CORRESPONDENCE.

(The Editor does not hold himself responsible for the opinions expressed by his correspondents.)

STRAWBERRY KENTISH FAVOURITE.—After reading the interesting note, p. 389, on the new Strawberry Kentish Favourite, I have sent you some fruits gathered from the open field, and packed as I send them to Covent Garden Market. Experienced Strawberry growers who have seen the crop on my farm have been astonished at the crop. Being an early variety, I have nearly finished picking the fruits from one bed. Those who have tasted the fruits on the farm in comparison with Royal Sovereign have pronounced Kentish Favourite decidedly superior in flavour. I have never seen any mildew on the plants, although some were planted next to a variety which were affected badly. The flower-trusses stood the frost much better than some other variety, and, although the variety does not bloom early, the fruits develop quickly, so that they are ready for harvesting first. The market growers of Strawberries are buying the runners in large quantities for planting next autumn. *W. R. Pierce, St. Dunstan's Nursery, Canterbury.* [These fruits were of extra large size and good flavour. See p. 427.—ED.]

FRUIT PROSPECTS IN SOUTH-EAST ESSEX.—The Apple and Plum crops are very poor indeed this year. Well-established trees that bore heavy crops of Apples last year are, as is usually the case the following year, quite fruitless. Trees of the following varieties of Pears are fairly well cropped: Beurré d'Amanlis, Beurré Diel, and Louise Bonne of Jersey. Apple trees nearly three

years old from the bud, owing to the semi-tropical weather and long spell of drought which we experienced last season, made very little wood growth, consequently plenty of fruit-buds were formed and matured. These opened into fine blossom in May; the blooms being large and strong, and a fine set of fruit resulted, thinning of the fruits being necessary. The trees though so young are strong, and with few exceptions, very healthy. The varieties which are bearing so freely are Lane's Prince Albert, Allington Pippin, Devonshire Quarrenden, Bismarck, Cox's Orange Pippin, Lord Suffield, King of Tompkins County, and Worcester Pearmain. Gooseberries are very plentiful, also Black Currants and Raspberries. *H. W. Ward, Lime House, Rayleigh.*

HYDRANGEAS IN TUBS.—In reference to *F. M.'s* note, p. 374, on "Hydrangeas in tubs for garden decoration," I enclose a photograph [not reproduced.—Ed.] of a plant of *Hydrangea Hortensia*, which has flowered for the past four seasons in a tub in the garden of H. L. Clarke, Esq., Wroxham, Norfolk. There is another equally good specimen, and the plants have received no special attention beyond being given a mulching of manure in the spring when growth is starting, and an application of a fertiliser at intervals of a fortnight while they are developing their flower trusses. In autumn the tubs are placed in a motor-house that is attached to the residence, and here they remain until the following spring. *J. C., Norwich.*

SUMMER PRUNING OF FRUIT TREES.—The report on summer pruning, published in the last issue of the *Gardeners' Chronicle*, is a most interesting record, and will serve to direct attention to a subject of considerable importance. If all the results claimed for the practice, and which might be theoretically expected, could be secured, it would constitute a most valuable aid to fruit growers of all classes. Were it possible to determine the production of fruit buds with this expenditure of labour alone, an ample reward would be obtained for the outlay. Further, if the transformation of wood buds in the current season's growth into flower buds could be thus readily effected, as some appear to assume, the greatest problem in connection with fruit growing would be solved, and, given immunity from frost, insects, or diseases, the grower might regulate his crops at pleasure. It is nearly 40 years ago since my attention was first directed to this subject, and it has been a matter for study on all favourable occasions ever since, under most diverse conditions and with all kinds of fruit-bearing trees or bushes grown in the United Kingdom. The results of my observations are as follow:—(1) Definite dates cannot be fixed for the work; they must be determined by the season and the weather. It is evident the reporters, whose opinions were published, have found this difficulty, for the dates given range over a period of three months, i.e., from the first week in June to the first week in September. (2) The operation when really beneficial is mainly so in reference to specially trained and restricted trees in removing superfluous growth and permitting the maturation of wood or fruit of the current season. (3) This exposure to light and air may assist in the formation of flower buds, if these develop subsequent to the performance of the pruning. But in the majority of cases buds are already formed when the work is done, and I have never been able to obtain sufficient evidence that current year's wood buds in this stage can be transformed into flower buds the next year by any method of summer pruning or pinching. The term "good," which so many reporters employ without any qualification, probably is used in a general sense in most cases, and refers more to wall trees and general convenience than to the chief object in view. In only 13 instances out of the 150 is any special term employed, such as "very good," "excellent," or "most beneficial," and then generally without any additional remark. In nine cases, however, observations are added indicating that the operation has resulted in the production of a greater number of flower buds, and here at once the question arises "How was the increase measured and recorded?" We are all inclined to found general conclusions upon imperfect or inadequate evidence, and in no work in this error more readily committed than in gardening, because so long a period often elapses between the cause and the effect that something

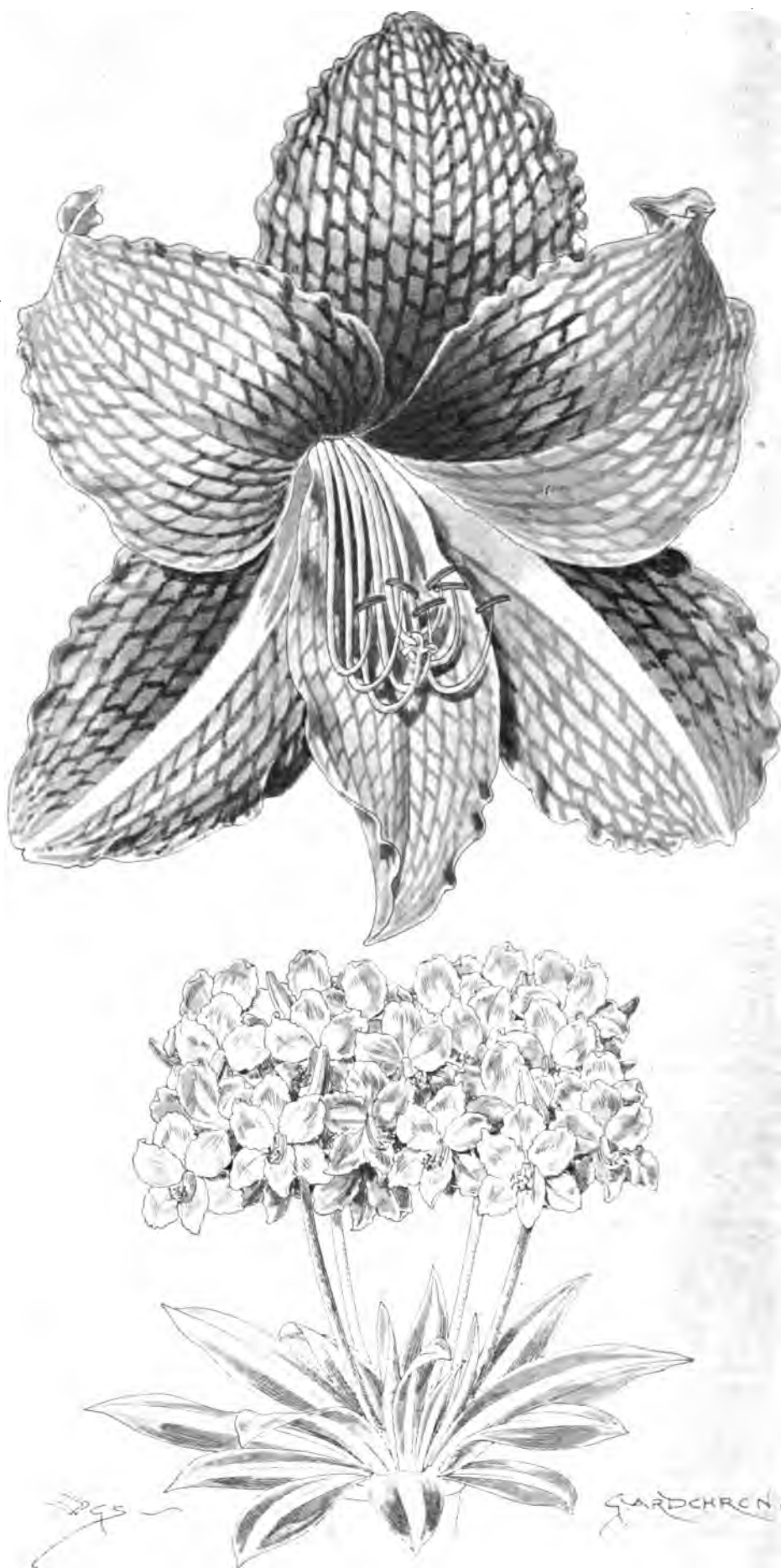


FIG. 173.—HIPPEASTRUM "MRS. CARL JAY." COLOUR OF FLOWERS, PINK AND WHITE.

(For text see page 425.)

of the utmost importance may be quite overlooked or forgotten in the meantime. What evidence can be produced to show that growth buds on the current season's wood have been altered by summer pruning into fruit buds the following year? This is the critical point. The general advantages of summer pruning are admirably reviewed in the leading article on page 406, which I can confirm from my own practice, but the essence of the whole matter is contained in the question I have submitted, and replies would be both interesting and useful. *Lewis Castle.*

The excellently tabulated report from 191 gardens in the United Kingdom, printed in last week's issue of the *Gardeners' Chronicle*, affords interesting and useful reading for expert fruit-growers residing not only in England, Ireland and Scotland, but in every colony and most other parts of the world. Out of 84 reports sent from Scotland four correspondents report the results as indifferent. Out of 142 reports from various parts of England 14 record indifferent results, but eight reports from Wales are all favourable to summer pruning, while two reports out of 16 received from Ireland attach no advantage to the practice. A few out of the 21 "indifferents" express definite opinions without giving any reason for doing so. One reporter, writing from Norfolk, states that summer pruning has no effect on cropping, whilst our esteemed friend and able practitioner, Mr. W. Miller, writing from Berkswell, Warwickshire, says "that summer pruning is not much practised," that it "is unnecessary," adding that the practice "admits air and light, otherwise of little use." The remaining 170 correspondents, writing from various parts of Scotland, northern, eastern, and midland counties of England, Wales, &c., have found that summer pruning is productive of good results. Mr. George Bunyard, whose opinion should carry great weight, writing from Maidstone, says summer pruning is "most beneficial," whilst another Kentish fruit grower of note, Mr. George Woodward, pronounces the practice "very good," and Mr. W. Speed and Mr. R. Milner, writing from Denbighshire and Glamorganshire respectively, both affirm that summer pruning is very satisfactory in its results. It would be interesting and useful to learn upon what grounds the "indifferents" base their opinion as to the non-beneficial results attending the practice of summer pruning fruit trees. *H. W. W.*

HIPPEASTRUM MRS. CARL JAY.

THIS *Hippeastrum* (fig. 173) received an Award of Merit at the meeting of the Royal Horticultural Society on June 11, principally for its extreme floriferousness. The flower is pleasing in its colouring, which is a shade of pink, on a white ground, the pink forming a veining over the surface of the petals. Each leaf has a white band along its centre, as is present in *H. reticulatum*. A description of the plant appeared on p. 392. The variety was exhibited at the meeting already mentioned by Mrs. Carl Jay, Blendon Hall, Bexley.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 25.—The meeting on Tuesday last in the new hall in Vincent Square, Westminster, might be almost described as a "Pæony" exhibition, such an outstanding feature did these showy flowers make among the exhibits. Many other hardy flowers, however, were presented, and there were, as usual, miscellaneous plants and flowers exhibited before the several Committees.

The ORCHID COMMITTEE's Awards to novelties included one First-Class Certificate, two Botanical Certificates, and two Awards of Merit.

The FLORAL COMMITTEE recommended 11 Awards of Merit, and the FRUIT & VEGETABLE COMMITTEE recommended Awards of Merit to a seedling Melon and Strawberry Kentish Favourite.

At the afternoon meeting of Fellows the usual election of new Fellows took place, and the Rev. Prof. George Henslow delivered a lecture on "The Peculiarities of Leaf-Arrangements."

Floral Committee.

Present: W. Marshall, Esq. (chairman), and Messrs. H. B. May, Jno. Green, Chas. E. Shea, J. T. Bennett Pöe, J. W. Barr, Walter T. Ware, R. W. Wallace, Jas. Douglas, C. Dixon, H. J. Jones, Chas. E. Pearson, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, H. J. Cutbush, Geo. Paul, R. C. Reginald Nevill, G. Reuthe, J. F. McLeod, John Jennings, R. Hooper Pearson, and R. C. Notcutt.

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, showed flowering plants in great variety, including both hardy and exotic species. Many beautiful greenhouse flowers were staged by Messrs. Veitch, of which we may enumerate *Angelonia salicariæfolia*, with purple flowers, and a white variety named *grandiflora alba*; *Rhododendrons Souvenir de J. H. Mangles* and *President*; *Swainsonia galegifolia*, *Rodgersia pinnata*, and varieties of *Carnations*. There were also hardy plants, including *Kalmia myrtifolia*, *Salvia Souliei* (a very coarse-growing variety, with large violet flowers), *Drimys Winteri*, a very extensive collection of *Pæonies*, and an equally representative display of Spanish Irises. (Silver-Gilt Flora Medal.)

Messrs. H. CANNELL & SONS, Swanley, Kent, displayed plants of *Gloxinias*, each having a large number of flowers, vases of long-spurred *Aquilegias*; a beautiful salmon-rose-shaded *Canna* named *Frau Emma Kracht*, and excellent tuberous-rooting *Begonias*. These last-named plants were exceptionally fine, some of the more handsome being *Lady E. Malet* (salmon), *Lord Roberts* (scarlet), *Mary Lady Vivian* (salmon-pink), *Mrs. A. G. Hubbard* (scarlet), *Mrs. Matthews* (white), *Sparklet* (richest scarlet), and *Sunflower* (yellow). (Silver Flora Medal.)

Messrs. JAMES CARTER & CO., High Holborn, London, displayed *Gloxinias* in a pleasing setting of small Palms, Ferns, *Selaginellas*, &c. The plants were all unnamed seedlings, with flowers in many pretty shades of colours, and were raised from seeds sown on September 15 last.

Mr. C. W. BREADMORE, Winchester, again contributed a display of handsome bunches of Sweet Peas, all showing the very highest degree of culture, and representative of the best and newest kinds in commerce. A selection includes *Miss Audrey Crier* (pink), *Helen Lewis* (rosy-salmon), *Miss H. C. Philbrick* (blue), *Vera Jeffery* (pale pink), *King Edward VII.* (crimson), *Mrs. Collier* (yellow), *Henry Eckford* (orange), *George Herbert* (magenta), and *Phenomenal* (a pale variety with a heliotrope edge—of *Picotee* type). (Silver-Gilt Banksian Medal.)

Miss H. HEMUS, Holdfast Hall, Upton-on-Severn, showed seedling Sweet Peas of much merit. Two were distinguished by Awards, and there were other good varieties in blue, pink, cerise and other colours.

Messrs. PAUL & SON, Old Nurseries, Cheshunt, showed Roses from the open. Sprays of a large, single, rambling variety overhung from the back of the exhibit—the name *Starlight* is not prettier than the flowers, which are white tipped with pale rose. Another having long sprays is *Buttercup*, the growth being studded with tiny yellow blooms. Both these Roses are new, and another exhibited for the first time is *Paula*, a new Tea variety—a derivative of *Marechal Niel* and *Georges Nabonnand*, but showing the influence of the former parent more largely. There were also such handsome kinds as *Lady Roberts*, *Mad. Abel Chatenay*, *Mad. Perney*, *Carmine Pillar*, *Mad. E. Resal*, &c. As a separate exhibit, Messrs. PAUL showed *Pæonies* which were equal to the best of these flowers in the Hall: *Dictamnus fraxinella*, *Verbascum olympicum*, &c. The following *Pæonies* were exceptionally fine: *Mad. de Verneille* (white), *Mad. Loise* (carmine), *Mad. Lemoine* (pink centre), *La Perle* (pink), and *Princess Mathilde*, having a creamy rosette-shaped centre, the outer petals being pink. (Silver-Gilt Flora Medal.)

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, displayed *Carnations*; especially fine was the variety *Sir Evelyn Wood* of the *Souvenir de la Malmaison* type. *Lady Rose* (rose pink) and *Nautilis* (pink) were also shown well by Messrs. LOW.

Mr. JAMES DOUGLAS, Edenside, Great Bookham, Surrey, showed border Pinks in variety, most of which were raised by the exhibitor. *Morna* is one of the finest of the laced kinds, the flower is large, and has deep maroon-

crimson lacings on a white ground. Excellent is worthy this name; it has a vinous red centre and claret-coloured lacing. *Oriel* is a fringed variety. Other good kinds are *Wedgwood*, *Rainbow*, *Beauty*, *Lufra*, and *Snowdrift*.

Messrs. BEN. R. CANT & CO., Colchester, Essex, showed bunches of garden Roses, amongst which we noticed *Bellefleur*, *Gruss an Teplitz*, *Perpetual Thalia*, *Pharisæer*, *Le Progrès*, *Ards Rover*, *Dr. Campbell Hall*, &c. (Silver Banksian Medal.)

Mr. L. R. RUSSELL, Richmond, Surrey, again displayed ornamental-leaved exotic plants as at the previous meeting. (Silver Banksian Medal.)

Spanish Irises were very plentifully represented. A large collection of seedlings was displayed by Messrs. H. HOMAN & SONS, Noordwijk, Holland, the blooms being remarkably bright in appearance and fresh, although they had travelled so far. Some of the best will be found described under Awards, and other commendable kinds included "Dream," the whole flower of which is streaked with blue on a paler blue ground; *Mad. de Staël*, white with a yellow blotch on the falls; and *Sweetheart*, the yellow falls overhung the white erect standards. (Bronze Flora Medal.)

Messrs. W. BULL & SONS, King's Road, Chelsea, showed Spanish Irises and a few of the English type. *Flora* is a Spanish Iris of a pretty shade of lavender with white falls marked with yellow. *King of the Blues* is another fine thing, and *Cajanus* is the best amongst yellow kinds, although *Canary Bird* and *Kingfisher* are two commendable flowers of this shade. *Gertrude* is an English Iris of a pleasing Plum colour.

Messrs. R. WALLACE & CO., Colchester, exhibited an assortment of seasonable garden flowers and many aquatic plants. Interesting subjects noticed were *Rodgersia podophylla*, a fine plant for the water-side; *Plantago maxima*, *Linum perenne*, *Mimulus Crispum Queen*, with dark reddish-brown flowers spotted with yellow; *Pentstemon Murrayanus*, a tall species, and *P. pygmaeus*, a dwarf species, as is indicated by the name. There were also many beautiful Irises *Liliums*, *Eremuri*, *Pyrethrums*, &c. (Silver Banksian Medal.)

Mr. AMOS PERRY, Enfield Chase, Middlesex, showed a very extensive exhibit of hardy plants, amongst which were choice varieties of *Pyrethrums*, Irises, *Campanulas*, *Heucheras*, Pinks, *Liliums*, *Ostrowskia magnifica*, *Galax aphylla*, *Eremurus robustus* and other species; *Allium Schubertii*, with rose-coloured, star-like flowers on long peduncles, that formed the rays of the umbellate inflorescence; *Oriental Poppies*, &c. *Dianthus Abbotsfordianus* is a charming subject for the flower garden; it has cerise-coloured flowers and a very floriferous habit. *Trays* of hardy *Nymphæas* found a place in the exhibit. (Silver-Gilt Flora Medal.)

Mr. C. REUTHE, Keston, Kent, had a fine array of hardy flowers, amongst which *Pæonies* were a conspicuous feature. *Pæonia arborea lutea* was shown in flower; it is a yellow-flowered *Pæony* that is somewhat rare in gardens, and not larger than a *Trollius*. Among the herbaceous kinds were *Festiva maxima* (white), *Duchess d'Namour* (white), *Carolina* (rose), *Mad. Calot* (a pale suffusion of rose), *Dog Rose* (single), and *Ceres* (white). *Kitty Reuthe* and *Mrs. Reuthe* are two handsome German Irises of Mr. REUTHE's raising. They are both of shades of lavender on white. The group also contained *Rhododendron cinnabarinum*, *Lithospermum* (*Moltki*) *petraea*, *Linaria*, *Pyrethrums*, &c. (Silver Flora Medal.)

Mr. MAURICE PRICHARD, Christchurch, Hants., displayed hardy flowers in great variety, all showing the highest form of culture and representing most of the best things in season. Hardy *Nymphæas* occupied a place in the centre of the group. (Silver Flora Medal.)

Mr. W. J. GODFREY, Exmouth, Devon, showed seedling *Delphiniums* in colours ranging from pale blue to almost purple; a number of pale coloured varieties of *Oriental Poppies*, some compact, small plants of *Solanum Wendlandii*, nicely flowering, and a dark-flowered border *Carnation* named Mr. J. P. Bryce.

Messrs. THOS. S. WARE, LTD., Feltham, Middlesex, exhibited a selection of herbaceous *Pæonies*, tall spike of *Delphiniums*, and *Eremuri*. In the group were also intermingled a few other hardy flowers. (Silver Banksian Medal.)

Messrs. W. CUTBUSH & SONS, Highgate, London, N., staged a very large group of perennial flowers, arranged in their usual artistic manner. Tall epergnes were requisitioned at the back to exhibit Eremuri, Delphiniums, Pæonies, and other tall subjects, and stands were also used as foils in the centre of the group, over a ground-work of Poppies, Irises, Veronica amethystina, Pyrethrums, Liliums, &c. (Silver Flora Medal.)

Messrs. BARR & SONS, 12, 13, 15, King Street, Covent Garden, London, showed numerous varieties of herbaceous Pæonies, also Spanish Irises in many of the choicer kinds, and white and other forms of Campanula persicæfolia. (Silver Flora Medal.)

Messrs. KELWAY & SONS, Langport, Devon, exhibited a very large collection of Pæonies, backed with a row of their named varieties of Delphiniums. Four of the best Pæonies are Geraldine, with a yellow pompon-like centre surrounded by an outer whorl of pink petals; A. J. Hunter, a fine rose-coloured variety; Mrs. Reginald Balfour, of a paler shade of rose than the last-named; and Beatrice Kelway, a fine white flower. The Delphiniums represented the best of Messrs. KELWAY'S strain, notable kinds

flowers as Pæonies, Scabiosa, Irises, Alstroemerias, Campanulas, Delphiniums, Eremuri, Pyrethrums, &c. (Bronze Flora Medal.)

Exhibits of Alpine and hardy flowers were also displayed by Messrs. JOHN PEED & SON, West Norwood; the Misses E. & M. KIPPING, Hutton, Essex; Mr. A. R. UPTON, the Guildford Hardy Plant Nursery, Guildford, Surrey (Bronze Flora Medal); and the Misses HOPKINS, Barming, near Maidstone, Kent.

A tall Iris of pale blue or heliotrope colour, allied to I. cypriana, and named Carthusiana, was displayed by J. W. MARSHALL, Esq., Robinites, Godalming.

Messrs. J. CHEAL & SON, Crawley, Sussex, again exhibited their rose-coloured form of Lupinus polyphyllus.

A large group of show Pelargoniums was staged on the floor by J. A. YOUNG, Esq., Stone House, Putney (gr. Mr. G. H. Street). The plants were well cultivated, freely flowered, and represented some very pretty varieties of these plants. (Silver Flora Medal.)

Some very handsome tuberous-rooting Begonias in both double and single-flowering varieties were shown by Messrs. JOHN LAING & SONS, Forest Hill, West Norwood.

Essex, and some other counties. It produces its many-flowered inflorescences very freely, and the flowers, which are of moderate size, are of a brilliant yellow colour, with a few small, red spots on the back of the lower lip, which show through. The plants, as shown, had flowers from 12 inches to 14 inches high, and the foliage was very similar in form to that of C. plantaginea. The accompanying illustration at fig. 174 is reproduced from a photograph kindly supplied us by Mr. P. C. M. Veitch, and shows the plants blooming in Messrs. Veitch's nursery in a position in which they have been planted for two years, during which time they have withstood 18 degrees of frost without receiving protection. Shown by Messrs. R. VEITCH & SON, Exeter.

Carnation The Squire.—This is a very finely-formed Carnation of dark heliotrope or puce colour. It belongs to the "border" section, and those who appreciate the colour will be sure to admire the contour of the flower. Shown by Mrs. BERKELEY, Spetchley.

Coleus Cordelia.—A very gross-growing variety, with large, crinkled leaves, many of which are nearly coloured red over their whole surface, with a shade of orange. Older leaves had more



FIG. 174.—CALCEOLARIA VEITCH'S HYBRID, FLOWERING IN THE OPEN, WHERE THE PLANTS HAVE GROWN FOR TWO YEARS WITHOUT PROTECTION. (See "Awards of Merit.")

being Kelway's Blue, of a deep shade of cobalt blue, Lord Hawke, a spreading flower with a deep purple sheen on a blue ground; Silver Buckle, a bell-shaped flower of a rich opal blue shade; Zinfandel, a double flower, blue in colour, with a purple centre; and Dorothy Kelway, pale blue.

Messrs. GEO. BUNYARD & CO., LTD., Maidstone, set up a fine exhibit of seasonable hardy flowers. These included most of the best plants in season, such as Pæonies, Delphiniums, Irises, Campanulas, Gaillardias, Poppies, Glaucium flavum, Phlox subulata, P. ovata, Lupines, Liliums, Roses, and a host of other pretty flowers, that required a large table for their accommodation. (Silver Flora Medal.)

Messrs. GEO. JACKMAN & SON, Woking, Surrey, staged hardy flowers. We noticed Betonica nivea, Dianthus neglectus, Acantholimon glumaceum, Dracoccephalum Ruyschianum, Poppies in variety, Irises, Gaillardias, Scabiosa, and a fine batch of the red Liliun davuricum erectum. Elsie is a border Pink of fine form, colour, and habit.

Messrs. G. & A. CLARK, LTD., Dover, Kent, showed hardy perennial plants in flower. This extensive exhibit was furnished with a choice assortment of the best garden kinds of such

Messrs. R. VEITCH & SON, Exeter, Devon, showed flowering sprays of Abutilon vitifolium, Ozothamnus rosmarinifolius, Buddleia Colvillei, Olearia macrodonta, &c.

Messrs. THOS. CRIPPS & SONS, Tunbridge Wells, Kent, showed ornamental-leaved Maples, decorative Vines and other climbers, Clematis, Genista sagittalis, the golden-leaved Elder, &c.

Messrs. H. B. MAY & SONS, Edmonton, staged Carnations, Gloriosa superba, Hydrangea paniculata, and other flowering plants in a setting of rare and choice varieties of Ferns. (Silver Banksian Medal.)

AWARDS OF MERIT

were recommended to the following plants:—

Amphicome Emodi.—An old but rare Bigoniaceous plant suitable for cultivation in the greenhouse, or in the most sheltered positions out-of-doors in warm localities. The plants grow to about 1½ foot high, and produce rose-coloured flowers with the slightest shade of orange. Shown by Messrs. JAS. VEITCH & SONS

Calceolaria Veitch's Hybrid.—This plant has been obtained from a cross between C. plantaginea and a variety of the herbaceous section. It is extremely valuable as a garden plant, having proved hardy in Devonshire, Surrey,

yellow, and less red colour. Shown by E. MOCATTA, Esq. (gr. Mr. Stephenson), Woburn House, Exeter.

Ervum gracile.—A perennial herb of the natural order Leguminosæ, having narrow leaves and purple, Vetch-like flowers, produced on inflorescences generally carrying about ten blooms each. The species of Ervum are now included in the genus Vicia. Shown by Mr. MAURICE PRICHARD.

Iris Mr. W. T. Ware.—A variety of I. hispanica; colour of flowers yellow, with orange blotch on the falls.

Iris King of the Whites.—Of the same type as the preceding variety. The flowers are very large and pure white, except for the bright yellow blotch on the falls.

Iris l'Unique.—A Spanish Iris, with erect, blue standards, and blue and white falls, the falls being white except for the yellow in centre. The Irises named above were shown by Messrs. H. HOMAN & SONS, Noordwijk, Holland, and the Awards were made for the unusual size and quality of the flowers.

Papaver orientale Jennie Mawson.—A very large flower of a salmon shade of rose colour, with a large purple blotch on each segment.

The flowers open sufficiently wide to display themselves well. The plants have a good, vigorous habit, and the flowers will last well after having been packed, the segments being very persistent. Shown by Messrs. MAWSON Bros., Windermere.

Sweet Pea Evelyn Hemus.—A distinct variety with creamy-white flowers, having rose-coloured margins to the petals. The blooms are of large size, and three or four are produced on the stalk.

Sweet Pea Carmine Paradise.—This flower is coloured brilliant carmine. It has an erect standard and possesses good quality. Both the varieties were shown by Miss H. HEMUS, Upton-on-Severn.

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the chair), and Messrs. Jas. O'Brien (hon. sec.), Harry J. Veitch, De B. Crawshaw, J. Wilson Potter, Francis Wellesley, F. J. Hanbury, W. Boxall, A. A. McBean, H. A. Tracy, W. H. White, H. G. Alexander, W. Bolton, J. Charlesworth, W. Cobb, A. Dye, F. M. Ogilvie, R. G. Thwaites, H. Ballantine, W. A. Bilney, H. T. Pitt, and C. J. Lucas.

Some excellent examples of choice and rare Orchids were presented by amateurs, and notably a small group staged by Major G. L. HOLFORD, C.I.E., C.V.O., Westonbirt, Tetbury (gr. Mr. H. G. Alexander), the central plant in the exhibit being a magnificent specimen of the best white type of *Odontoglossum crispum*, grown from a single pseudo-bulb, which has developed into a grand plant carrying 12 flower-spikes, bearing altogether 88 flowers. A Cultural Commendation was voted Mr. Alexander, the grower. With it were *O. crispum Zoroaster*, a large, rosy-lilac flower with some reddish spotting; *Lælia tenebrosa*, "Walton Grange variety," still unapproached in its class; *L. tenebrosa*, "Westonbirt variety," a beautiful and very darkly-coloured form; *Lælio-Cattleya Herode*, "Westonbirt variety" (*L.-C. elegans* × *C. O'Brieniana*), an attractive rosy-lilac hybrid; and flowers of *Sobralia Holfordii*, *S. macrantha alba*, *S. Amesiana*, and *S. Veitchiana*. (Silver Flora Medal.)

No less remarkable from a cultural point of view was the stately *Lissochilus giganteus* shown by the Hon. WALTER ROTHSCHILD (gr. Mr. A. Dye), and which forms a worthy companion to the fine *L. Horsfallii* so well shown by Mr. ROTHSCHILD on March 6 last year. (See Awards.)

Sir TREVOR LAWRENCE, Bart., Burford (gr. Mr. W. H. White), showed a selection of finely-grown rare species, including the pretty *Epidendrum* (*Barkeria*) *spectabile*, with many spikes of large white and rose-coloured flowers; a fine example of *Cryptophoranthus Dayanus*, *Maxillaria ochroleuca*, and others, some of which received Awards.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, staged a very extensive group, for which a Silver-Gilt Flora Medal was awarded. A fine feature was made by a large number of excellent form of *Lælio-Cattleya Canhamiana*, the class having white sepals and petals being grouped together, as were those with rose segments. At one end of the group was a selection of *L.-C. Fascinator*, and, arching over from the back were sprays of the white *Phalænopsis amabilis Rimestadtiana*, *Odontoglossum Wilckeanum*, *O. crispum*, *Oncidium macranthum*, &c. Among the blotched forms of *Odontoglossum crispum* were several of the *Heatonense* type illustrated in the *Gardener's Chronicle*, June 22, p. 409. Other good things noted were *Acineta Hrubyana*, with stout racemes of white flowers carrying purple labellums; *Cirrhaea viridis*, the singular *Ornithocephalus grandiflorus*; the violet-coloured *Warszewiczella discolor*, a good *Cattleya Mossiae* alba, and many hybrids.

Messrs. HUGH LOW & Co., Bush Hill Park, Enfield, were awarded a Silver Banksian Medal for a group in which were handsome *Cattleyas*. The flowers of *C. Mossiae* "King of Siam" are pure white, and *C. M. Arnoldiana*, Smee's variety, is also a white form, with slight marbling of rose on the lip. *Masdevallia Peristeria*, and other *Masdevallias*, various *Odontoglossums*, including a light-coloured form of *O. Loochristiense*, *Cypripedium callosum* *Sanderæ*, *C. Maudiae*, the singular *Cirrhopetalum Thouarsii*, and some well-flowered *Oncidium macranthum* were also displayed.

Messrs. MOORE, LTD., Rawdon, Leeds, secured a Silver Banksian Medal for an interesting group, which included the handsome *Cölogyne asperata* (see Awards), *Maxillaria rufescens*, *Promenaea xanthina*, *Cypripedium callosum* *Sanderæ*, *Trichopilia crispata marginata*, *Erides Fieldingii*, *Cochlioda Nozliana*, *Masdevallia Bocking* hybrid, and other *Masdevallias*, &c.

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr. Mr. Smith), exhibited a group which was remarkable for the number of pretty species it contained, including *Pleurothallis Barberiana*, with gnat-like flowers; *P. immersa*, with white, feather-like sprays of flowers; a selection of *Masdevallias*, including *M. radiosa*, *M. Carderi*, *M. triaristella*, *M. stella*, *M. Chimera*, *M. Chestertoni*, &c.; also *Miltonia vexillaria*, good *Oncidium macranthum*, *O. Krameri*, *Saccolabium ampullaceum*, and *Stelis tristyla*. *Cypripedium Curtisii* *viridis* has labellums of a dull green colour, slightly tinged with purple; *Lælio-Cattleya Endymion* (*L. tenebrosa* × *C. Gaskelliana*), &c. (Silver Banksian Medal.)

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr. Mr. Hopkins), sent *Lælio-Cattleya Hippolyta* "Prince of Orange," a specially brightly-coloured variety, with reddish-orange-coloured sepals and petals, and a claret purple lip; *Lælio-Cattleya Miss Leese* (*L. tenebrosa* × *C. Wm. Murray*) has white sepals and petals suffused with lilac. The lip is purple, changing to rose in the front.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), sent *Lælio-Cattleya C. G. Roebling*, "Glebelands variety," a compact, white flower, with the front of the lip bright ruby-purple, and with a broad, pure white margin.

Miss WILLMOTT, Warley Place, Great Warley, Essex, sent a fine specimen of *Sobralia Veitchii*, Warley variety. The sepals are cream-white, the petals tinged with primrose; the yellow lip having a lilac shade on the front lobe.

J. WILSON POTTER, Esq., Elmwood, Park Hill Road, Croydon (gr. Mr. W. H. Young), sent *Cypripedium Wiertzianum*, "Wilson Potter's variety," a flower larger in all its parts than the ordinary form and finely marked.

W. THOMPSON, Esq., Walton Grange, Stone, Stafford (gr. Mr. W. Stevens), sent *Odontodia Bradshawia*, Walton Grange variety, finer than the original type and of a bright-red colour, the margins of the sepals and petals being coloured dark red.

H. S. GOODSON, Esq., Fairlawn, Putney (gr. Mr. G. E. Day), again showed *Odontoglossum Wilckeanum* "H. S. Goodson." The flower is generally cream-white, but the sepals, save the tips, are chocolate-brown, and the petals blotched with the same colour. The plant was finely grown, and bore a very strong flower-spike.

Mr. W. HOLMES, The Gardens, Hey House, Tonge Moor Road, Bolton, sent *Cypripedium Euryale*.

Messrs. STANLEY & Co., Southgate, showed several very distinct forms of *Cattleya Mossiae*, including the variety *Sunbeam*, the flower of which is white, with a slight purplish marking on the lip; and another named *Heliotropium*, also white, but suffused with a lavender shade.

Messrs. J. & A. A. McBEAN, Cooksbridge, showed a fine variety of *Cattleya Mendelii*, the pure white *C. Mossiae* *Wagneri*, *C. M. Reineckiana*, and two fine *Odontoglossum crispums*.

R. G. THWAITES, Esq., Streatham (gr. Mr. Black), showed *Odontoglossum Pescatorei* *Grand Duchess*, probably the largest and best form of *O. Pescatorei*. The flowers are as large as those of *O. crispum*, and of circular outline, white, with a rose flush on the sepals, and some purple spots in front of the yellow crest of the lip. The same gentleman also displayed a fine white *O. crispum*, with some spotting on the sepals.

AWARDS.

FIRST-CLASS CERTIFICATE.

Lissochilus giganteus, from the Hon. WALTER ROTHSCHILD, M.P., Tring Park (gr. Mr. A. Dye). A species from the Congo of very large size, and which was first flowered by Sir TREVOR LAWRENCE, Bart., in 1888; a figure and description of this plant is given in the *Gardener's Chronicle*, May 19, 1888, pp. 616-7. The leaves are bright green and plicate; the stout inflorescence rises to a height of 7 feet or more, and bears on the upper third of the flower stalk about thirty

flowers and flower buds. The flowers, which are more than 3 inches across, have inconspicuous sepals of a greenish hue tinged with purple, the conspicuous part being the broadly ovate petals, which are of a bright rose-pink colour; and the large three-lobed lip of a rosy-lilac tint with some darker lines on the disc, and a purple shade on the front. It is a noble plant, and under the semi-aquatic treatment during the growing season, devised by the Hon. WALTER ROTHSCHILD so successfully for *L. Horsfallii*, it thrives admirably. The inflorescence elongates as the upper flower-buds develop, and in its native habitat it is said to often attain a height of from 15 to 16 feet.

AWARDS OF MERIT.

Cirrhopetalum gracillimum, from Sir TREVOR LAWRENCE, Bart. (gr. Mr. W. H. White). An elegant little species with slender scapes bearing umbels of pretty Indian-red flowers, the lateral sepals being thread-like and about 2 inches in length and decurved so as to form a parasol-like head. The extraordinary structural arrangement of the central and smaller parts well repays examination with a lens.

Cölogyne asperata, from Messrs. MOORE, LTD., Rawdon, Leeds. A large-growing species often imported from Borneo, but seldom seen in flower. The plant bore a strong inflorescence with many large cream-white flowers that have brownish-orange markings on their lips.

BOTANICAL CERTIFICATE.

Platoglottis Lowii (syn. *C. Lowii*), from the Hon. WALTER ROTHSCHILD (gr. Mr. A. Dye). A singular Malayan species with purple-tinted pseudo-bulbs and leaves and erect pubescent scape bearing very singularly-constructed, but not conspicuous flowers, the lateral sepals of which are curiously arranged, cream colour with a brown blotch on each.

Hartwegia purpurea, from Sir TREVOR LAWRENCE, Bart. (gr. Mr. W. H. White). A dwarf-growing plant with stem-like pseudo-bulbs, having fleshy, dull green leaves that are spotted with red, and bearing a slender inflorescence with a cluster of rose-coloured flowers on the apex.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (chairman), and Messrs. H. Parr, Geo. Kelf, J. Davis, H. Markham, Alex. Dean, P. D. Tuckett, C. G. A. Nix, J. Jaques, Owen Thomas, W. H. Divers, W. Poupart, A. H. Pearson, Thomas Coomber, Jas. Vert, Chas. Foster, P. C. M. Veitch, G. Reynolds, and A. R. Allan.

This committee again found little to occupy its attention.

The chief exhibit was one of 15 Queen Pine-apples, a fruit now rarely exhibited from British gardens. These were sent by Lord LLANGATROCK, The Hendre, Monmouth (gr. Mr. Thos. Coomber), and were extremely good specimens of this choice fruit. (Hogg Medal.)

Messrs. DOBBIES & Co., Rothesay, N.B., and Mark's Tey, Essex, showed 24 varieties of Potatos from the open garden. They represented a very clean, well-cultivated sample, and, considering they were dug from the open, they were of remarkable size. The varieties included such standard sorts as *Ideal*, *Southern Queen*, *Duke of York*, *Sharpe's Victor*, *Early Puritan*, and *Crimson Beauty*. (Silver Banksian Medal.)

Messrs. JAMES VEITCH & SONS, LTD., King's Road, Chelsea, showed pot plants of a rather coarse-growing Tomato named *New Dwarf Red*. It is a free-cropping variety, with fruits of a rather more than medium size.

Several seedling Melons were presented for Awards, and a well-preserved sample of *Apple Barnack Beauty* was sent for naming.

AWARDS OF MERIT.

Melon Eminence.—An oval fruit of medium size, with a beautiful yellow exterior that is pleasingly netted. The flesh is white, and is said to possess a very fine flavour. Shown by Mr. MCKELLAR, Royal Gardens, Frogmore.

Strawberry, Kentish Favourite.—No fruits of this variety were found after the Committee had risen, but from a sample sent us direct by Mr. W. R. Pierce, St. Dunstan's Nurseries, Canterbury, we are enabled to furnish the following description. The fruits are large, having much of the shape and appearance of *Royal Sovereign*, but are slightly darker in colour. Most

of the fruits we received were of unusually large size, wedge-shaped, and although the flavour is not equal to that of some older varieties, it is agreeable, and superior to that of Royal Sovereign. Mr. Pierce informs us the variety is a good cropper, capable of withstanding mildew, and that the fruits ripen very early in the season. Shown by Messrs. HUGH LOW & Co., Bush Hill Park, Enfield.

NATIONAL CHRYSANTHEMUM.

JUNE 20.—The members of the National Chrysanthemum Society held their annual outing on the above date, when, by permission of Jeremiah Colman, Esq., a visit was paid to Gatton Park, Surrey. The grounds and gardens were inspected by the visitors. The Orchid houses were a very great attraction, and Mr. Bound, the head gardener, succeeded in arousing the interest of every member of the party by his description and explanation of the habits and peculiarities of the plants. A close inspection was also made of the celebrated Marble Hall, which was originally erected by the late Lord Monson. Gatton was, in earlier times, one of the pocket boroughs, returning two members to Parliament, and the Town Hall, which would certainly not accommodate more than eight or ten people, is interesting. Although some of the best of the cattle were away at the various shows, there were still sufficient left to show the great interest taken by Mr. Colman in cattle breeding. After an inspection of the grounds, the party was conducted in brakes to Redhill, where lunch was served at the Warwick Hotel. The chairman of the society, Mr. Thomas Bevan, presided, and at the conclusion proposed the health of Mr. Jeremiah Colman, coupling with it the name of Mr. Bound, who had acted as guide to the party throughout. After lunch the party enjoyed a drive round Norwood Hill, Leigh, Reigate Heath, etc., returning to Redhill in time for tea at 6 o'clock. Another drive back to Mersham in time to catch the train for London Bridge completed the day's programme.

ANSWERS TO CORRESPONDENTS.

* * * The Editor will be glad to receive, for consideration, large photographs of horticultural subjects, suitable for forming Supplementary Illustrations to this Journal.

CANNA FAILING TO GROW: W. H. W. It would appear that the roots were kept in unsuitable conditions during last winter, and that they were without life when you potted them up in the spring. If this had not been the case, the plants would certainly have shown some indication of growth, even if they failed afterwards. The injury during winter may have been caused by cold, or by the presence of too much water in the soil, which sometimes happens through the dripping of water from the stages.

CARNATIONS: H. O. E. The seedlings appear to us to possess much merit, and judging from the great length and rigidity of the flower stems we should have supposed they were raised wholly, or partly, from American varieties. Most of the flowers are shades of carmine or pink, and are very pretty, but scarcely so full as meets with general appreciation. You should get together three good plants of each variety and show them in full flower before the Floral Committee of the Royal Horticultural Society.

CATERPILLARS: P. McG. These could not be found. Send fresh specimen.

COST OF FUEL FOR HEATING TWO RANGES OF FRUIT AND PLANT HOUSES, PITS, &c.: Eky-Ark. The probable annual cost of heating your two ranges of glasshouses, pits, and sheds, by means of some 1,300 feet of 4-inch (mostly), and 3-inch hot-water piping attached to two separate boilers, a Gold Medal and a Chatsworth, would be the purchase of about 90 tons of coke in order to heat both apparatuses efficiently during a period of 12 months. This coke, at a cost of 13s. 6d. per ton, would amount to £60 15s. In this calculation due allowance is made for the low temperatures necessary to be observed in the fruit houses (two Peach houses and two vineries), in which Chrysanthemums, Arum Lilies (*Richardia africana*), Deutzias and bedding plants are

wintered. A considerable saving in the fuel bills might be effected in many gardens, by the exercise of more careful stoking on the part of those whose duty it is to do the work, such, for instance, as the keeping of the furnace bars and flues clear from accumulations of ashes and small coke, which cause them to become choked, resulting in a sluggish draught. The banking up of the fires with ashes should be done sufficiently early on the mornings of bright days to allow sun heat alone to cause the atmospheric temperature to rise to the desired degree in the houses. It is a wasteful practice to push the fires first thing in the morning, without considering what the weather may be like. In the case of sunshine appearing the temperature becomes too high, and to decrease the heat it is then necessary to open the furnace door, and let the heat out into the stoke hole. This would be proof that more fuel had been put into the furnace than was necessary.

DOUBLE FLOWERS FAILING TO PRODUCE SEED: R. B. The reason that double flowers produce little or no seed is because the doubling has arisen through the conversion of stamens into petals, which therefore usually lose their functional capacities. It frequently happens, however, that not all the stamens in a double flower are thus modified, and in such cases the flowers may be capable of producing a small quantity of seed.

EXAMINATION IN HORTICULTURE: J. L. Apply to the Secretary of the Royal Horticultural Society, Vincent Square, Westminster, London.

FUNGUS ON LAWN: J. S. The Mushrooms are the "Fairy Ring Champignon" *Marasmius Oreades*. The only thing to do is to dig out the patches and relay the turf, as the mycelium pervades the soil, and the area will grow larger every year.

GLASSHOUSES ON SIDE OF HILL: B., Limited. We do not think there need be any insuperable difficulty in heating the houses with one boiler, even though they are on different levels. It will, however, be necessary to place the boiler below the level of the lowest house, and lay the flow pipe through this first, in order that the house which is situated highest will be at the farthest extremity from the boiler.

GLOXINIAS: Regular Reader. We suspect the trouble is caused by insufficient ventilation, but cannot be sure owing to the specimen being so badly packed that the soil has mixed with, and adheres to, the partly decayed foliage.

HEN AND CHICKEN DAISY: G. H. The abnormal form of Daisy you send is not uncommon; a number of adventitious buds have developed on the inflorescence and have given rise to secondary capitulum. It is an example of lateral floral proliferation of the inflorescence.

LILY OF THE VALLEY CROWNS: C. G. H. You do not send any information in respect to the plants. No mycelium and no trace of fungus disease is present in the crowns. Every information should be afforded to enable us to arrive at a correct solution.

NAMES OF FRUITS: G. E. P. Apple D'Arcy spice.

NAMES OF PLANTS: K. S. L. 1, *Atragene alpina*; 2, *Vinca minor*.—E. C. D. 2, *Thesium linifolium*; 3, *Ranunculus flammula*.—*Rubrum*. 1, *Nepeta Mussinii*; 2, variety of same species; 3, *Dianthus Plumarius*; 4, specimen not received; 5 and 6, *Saxifraga* sp.—W. J. *Psoralea pinnata*.—A. B. 2, *Cratægus Crupgalli arbutifolia*; 4, *Vaccinium corymbosum*; 5, *Acer pennsylvanicum*.—W. P. 1, *Cratægus punctata*; 2, *Amelanchier canadensis* var. *ovalis*; 3, *Alnus glutinosa aurea*.—T. W. R. *Zelkova crenata*.—*Fresco*. 1, *Scilla peruviana*, dark variety; 2, *Thalictrum flavum*; 3, *Erinus alpinus* probably, specimen too much withered for accurate determination; 4, *Dianthus plumarius* var.; 5, *Saxifraga Andrewsii*; 6, *S. taygetea*.—T. C. *Botrychium lunaria*, a Fern.—M. A. P. 1, *Berberis Thunbergii*, very finely fruited; 2, *Polemonium coeruleum*; 3, *Cassinia fulvida* (syn. *Diplopappus chrysophyllus*); 4, *Ligustrum vulgare*, variegated variety; 5, *Ceanothus thyrsiflorus*; 6, *Achillea Ptarmica*.—C. M. 1, *Erigeron alpinus*; 2, *Sidalcea malvæflora*; 3, *Cistus monspeliensis florentinus*; 4, *Thalictrum minus*; 5, *Spiræa Ulmaria*; 6, *Spiræa Aruncus*.—A. P. N. 1, *Scilla peruviana* (blue);

2, *Sisyrinchium striatum*; 3, next week.—T. H. 1, *Sedum Rhodiola*; 2, not recognised; 3, *Lychnis viscaria*.—A. R. T. 1, *Maxillaria rufescens*; 2, *Trichopilia laxa*; 3, *Oncidium barbatum*; 4, *Brassia brachiata*; 5, *Bifrenaria Harrisoniae*; 6, *Ada aurantiaca*.—R. A. H. 1, *Akebia quinata*; 2, *Calycanthus floridus*; 3, *Muscari Comosum*; 4, Iris, flower withered; 5, *Syringa Emodi*; 6, *Funkia Sieboldii*.—F. R. 1, Campanula species; 2, *Lilium monadelphum*; 3, *Lilium Thunbergianum*; 4, *Lilium Martagon*; 5, *Campanula Hendersoni*.—W. P. S. F. We do not undertake to name varieties of Roses. Send them to a nurseryman who has means of comparing them with similar flowers.—L. H. 1, *Neottia nidus-avis*; 2, next week; 3, *Habenaria bifolia*; 4, *Cephalanthera grandiflora*.

NECTARINE FRUITS: P. McL. The disfigurement appears to have been caused by the punctures of some small insect.

ONIONS: J. C. There is no fungus present, but the roots are attacked by microscopic creatures known as Eelworms. These being already in the plants it is next to impossible to kill them without causing injury to the plants. Some growers have obtained comparatively good results from the injection of small quantities of bisulphide of carbon into the soil. "Vaporite," a proprietary article manufactured by Mr. Strawson, has also been recommended.

PEACHES: A. E. The fruits received are perfectly healthy, though far from ripe. That they are not more forward can only be explained by describing your forcing treatment as very slow. If you want to hasten the ripening, you should employ more heat which is not injurious after the stoning stage is passed. We certainly think that both the borders you mention must, by this time, require water, but there is nothing in the specimens to show that the trees have already suffered from drought.

POULTRY: *Ovum*. Write to the Editor of *Poultry*, 12, Mitre Court Chambers, Fleet Street, London, E.C.

PLOUGH FOR SUBSOIL: A. J. M. It is only at farm sales in Kent or Sussex, as a rule, that old turn-wrest ploughs are to be obtained, and most of them are too heavy for two horses. An advertisement for a light secondhand plough in the *Sussex Express*, Lewes, would possibly elicit offers, as there are many old ploughs lying about unused. A strong ridging-plough without its breasts, to follow an ordinary plough, would do the work moderately well, but possibly you could hire a proper ridging-plough locally. The small American cultivating machines are capable of standing a great strain, and they are valuable for cultivating between fruit trees and bushes. You might purchase a "Planet Junior" cultivator that will work the subsoil when divested of some of its attachments.

RAINFALL: A. W. Write to the authorities at the Meteorological Office, Victoria Street, Westminster, who will supply you with the information you desire.

ROSE LEAVES: *Juvenile*. The condition in the leaves is caused by the cold weather, which makes them very liable to the attack of mildew and other fungus diseases. Syringe the trees with water containing a little flowers of sulphur, and when the weather becomes warmer the trouble will probably cease.

SPOTTED LEAVES OF SYCAMORE: H. C. The spots on the upper surface are galls caused by the punctures of some minute insect. Not at all uncommon on various trees.

VIOLET LEAVES: P. H. L. The leaves are affected by a fungus disease, the growth of which is favoured by shade and a condition of dampness, such as exist in the small spaces between rows of big Currant bushes. If you have some plants which are not contaminated with the disease, it will be best to burn those which are now in the fruit plantation, and cultivate the healthy plants in a position where the air is less stagnant and more light is present.

COMMUNICATIONS RECEIVED.—W. W. R. & Co. (your letter has been forwarded).—F. S. (next week: thanks for 8s. 6d. for the R. G. O. F. Box).—C. A. & McA.—F. M.—S. W. W.—H. M.—R. E.—J. C.—F. D.—F. H. C.—J. C.—S. A.—H. S.—J. B., Mexico—de B. C.—M., Texas—W. G.—F. B.—H. L. & Co.—H. M.—H. C., Geneva—W. N.—J. A. W.—R. J. H.—W. H.—S. C.—P. B.—T. S.—T. J. B. W. D.—W. X.—H. A.—J. K. R.—W. P.—Miss P.—S. S.—H. E.—J. P.—T. C.—A. H.—W. U.—H. A. P.—A. E. E.—C. L. L.

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